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TABLE OF CONTENTS

Journal of Business and Accounting
Vol. 17, No. 1; Fall 2024

EXAMINING THE COMPLEXITY OF INCOME TAX LAWS IN THE INTERNAL REVENUE CODE (IRC): A SYSTEMATIC LITERATURE REVIEW ON ITS IMPACT ON SMALL BUSINESSES IN THE UNITED STATES

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ABSTRACT

This systematic literature review dives into the complex world of income tax laws within the Internal Revenue Code (IRC) and the impact it has on small businesses in the United States. The study aims to unravel the intricacies in the IRC's provisions, shedding light on the maze of regulations small businesses navigate. It investigates how these tax laws affect small enterprises considering factors like compliance burden, financial implications, and tax code complexity levels. Through a thorough analysis of existing literature, the research seeks to identify patterns and key insights regarding the challenges small businesses encounter in dealing with the complex tax framework. This study contributes valuable perspectives for policymakers, practitioners, and researchers aiming to better understand the dynamic relationship between tax code and decision-making for entrepreneurs.

Key Words: Internal Revenue Code, income tax laws, tax code complexity, small businesses

INTRODUCTION

Income tax laws are commonly understood by citizens of the United States to be extremely detailed and are far from the model of transparency. Written to address numerous conflicting policies and diverse scenarios, the Internal Revenue Code (IRC) forms a sprawling tapestry of limitless nuances (Afonso, 2019). Finding the reasons behind the convolutions of this framework will help to understand how it can be improved in the future. To figure this out, the Internal Revenue Code, where the United States income tax laws preside, must be inspected.

The Internal Revenue Code is the legal framework that consolidates all federal laws, specifically income, estate, gift, excise, alcohol, tobacco, and employment taxes (United States Census Bureau, n.d.). This body serves as an extensive and intricate framework governing taxation for all United States taxpayers. Given the substantial amount of information encapsulated within the IRC, its complexities pose challenges for comprehension. Since professional help is often needed to understand these complicated tax codes, it can become an issue when that assistance is not budget friendly.

This literature review aims to discern the factors contributing to the complexity of the tax code and explore avenues for enhancing its accessibility, particularly for small businesses. By examining multiple survey-based studies, the objective is to gauge the level of perception among small businesses regarding Title 26 of the United States Code, specifically the income tax code. The examination of this evidence holds significance as complex tax codes frequently impact American entrepreneurs, spanning from the federal level to the local level, and a large number of taxpayers are not perceiving taxes accurately (Weber, 2015; Ballard & Gupta, 2018). A more in-depth analysis of these research studies will aid in the awareness of the profound impact of tax code complexity on small businesses.

The survey findings will serve as indicators of the level of tax code complexity within the United States, providing insights into how it influences the activities of small businesses in the nation.

Through an exploration of the perplexities of the tax code and an examination of relevant studies, this review aims to articulate potential improvements to construct a less complex tax code. Insights from tax professionals, along with contributions from individuals engaged in studying and researching tax complexity, will be considered. These considerations will facilitate a thorough grasp of the perspectives of all parties impacted by the complexity of the tax code.

The identification of factors contributing to tax complexity, including frequent revisions, unconventional language, and the extensive nature of the tax code, will guide the exploration of avenues for tax code improvement (Burton & Karlinsky, 2016; Weber, 2015). The review will elucidate the significance of such improvements and stress the potential consequences that may arise if tax complexity remains unchecked. To initiate the exploration of the origins of tax code complexities, it is essential to grasp the nature of both the Internal Revenue Code and Income Tax Laws.

HISTORICAL EVOLUTION OF THE INTERNAL REVENUE CODE

The Internal Revenue Code, also recognized as Title 26 of the United States Code (26 USC), underwent initial compilation in 1939. Significant revisions were instituted in 1954 and 1986 (United States Census Bureau, n.d.). One of these main revisions being the Tax Reform Act of 1986, which was made in an effort to simplify the income tax code (Internal Revenue Service, n.d.). The IRC serves as a comprehensive repository for all federal tax laws, encompassing income, estate, gift, excise, alcohol, tobacco, and employment taxes.

The IRC, colloquially known as the Internal Revenue Code of 1986, due to substantial revisions in the Tax Reform Act of 1986, carries the force of law in the United States (United States Census Bureau, n.d.). The United States tax law has significantly increased, from 26,300 pages in 1984 to 76,608 pages in 2014, aiding in the increase of tax law complexity (Burton & Karlinsky, 2016). The notable surge in pages is attributed to further modification and revisions made to the tax code. While these adjustments were intended to facilitate simplification and enhance clarity in the interpretation of the Code, their perception might have varied.

Access to the current United States Code is facilitated through the Internal Revenue Service website, where Title 26 – Internal Revenue Code is organized into Subtitles A through K, each containing multiple chapters (U.S. House of Representatives, n.d.). Specifically, Subtitle A – Income Taxes, with six chapters each having its own subchapters, becomes the focal point of this study. By exploring the elaborate details of the income tax code, the interpretation of its complexities can be investigated further. This structured framework provides the path through the nuanced landscape of tax regulations.

ANALYSIS OF INCOME TAX LAWS WITHIN THE IRC

The first federal income tax was created in 1861, it was a flat tax and was repealed in 1872. Income tax brackets did not exist prior to 1913, with the ratification of the 16th Amendment and the passage of the 1913 Revenue Act (Luscombe, 2022). All residents and citizens of the United States are subject to federal income taxes (Legal Information Institute, n.d.). As income tax is obligatory for all individuals generating income in the United States, it becomes essential for them to comprehend the laws and regulations governing the payment of their taxes.

Income tax laws in the United States are broken down into six chapters. These chapters include Normal Taxes and Surtaxes, Tax on Self-Employment Income, Unearned Income Medicare Contribution, Withholding of Tax on Nonresident Aliens and Foreign Corporations, Taxes to Enforce Reporting on Certain Foreign Accounts, and Consolidated Returns. The arrangement of chapters in the income tax law is designed to be logical for the majority of taxpayers, progressing

from topics that are the most relevant to those that are the least relevant for the average American. All chapters included in this subtitle are broken down into multiple subchapters or sections (U.S. House of Representatives, n.d.).

Subchapters relating to the income tax code are highly necessary. Chapter one of Subtitle A has subchapters A through Z, though three of these have been repealed (U.S. House of Representatives, n.d.). The first chapter just begins to break down the front matter necessary to understand the income tax code. Although the first chapter is the most extensive of all chapters included in this Subtitle, the other chapters still contain extensive content.

THE CONTRIBUTION OF SMALL BUSINESSES

Small businesses are one of the biggest contributors to the United States economy. Small businesses constitute approximately 99% of American businesses, with approximately 33,185,550 such enterprises employing around 61.7 million Americans (Office of Advocacy, 2023). Serving as the backbone of the United States, small businesses play a crucial role in the country's functionality. Even though small businesses are imperative to this country, it can be hard to find a definitive definition of what a small business is.

In 2023, the Office of Advocacy defined small businesses as independent entities with fewer than 500 employees. Unlike the U.S. Census, the Small Business Administration's Office of Advocacy does not utilize revenue as a metric for measuring small businesses. Instead, the number of employees serves as their benchmark. If a small business exceeds the 500-employee threshold, its employment gains are then classified as large firm employment (Office of Advocacy, 2023).

The U.S. Census focuses on businesses with revenue of $40 million or less or those employing 1,500 individuals or fewer. Hait (2021) explains that alternate methods, such as using the data on sales or shipments, can be employed to define a small business. Regardless of the specific definition, the significance of small businesses to the nation is evident, leaving no question that they drive economic growth (Hait, 2021). Small businesses stand as a key contributor to a thriving economy and are consistently introducing new avenues for fiscal advancement.

Small businesses and entrepreneurs serve as key drivers of economic growth, and sustained prosperity relies on their active participation (Riberio-Soriano, 2017). Beyond fostering economic growth, these businesses play a vital role in job creation. From 1995 to 2021, small businesses created 17.3 million net new jobs and have accounted for 62.7% of net new job creation since 1995 (Office of Advocacy, 2023). Collectively, small businesses stimulate the United States economy and without these contributions, the U.S. would not be where it is today.

If the businesses that make up nearly 99% of America's business landscape struggle to comprehend the income tax code, it may lead to delays in tax payments. Particularly for those unable to afford professional tax services, such delays could be prolonged. This could potentially lead to an increase in the tax gap, which is the non-filing, underreporting, and underpayment of taxes (U.S. Department of Treasury, 2022). This highlights the importance of ensuring that small businesses have access to a comprehensible and manageable tax code to facilitate timely and efficient tax compliance

COMPLEXITY OF THE TAX CODE

Revisions and Changes

One primary factor contributing to tax code complexity is the frequent revisions and changes within it. There are also tax provisions that expire at a given date, which are known as "sunsets" (Gale & Orszag, 2003). An illustrative instance of this is found in Chapter 5 of Subtitle A in the tax code, which has undergone repeal. This chapter focused on imposed tax on transfers to avoid

income tax, nontaxable transfers, foreign trust, and payment and collection of the tax-imposed tax on transfers (U.S. House of Representatives, n.d.). Repeals and revisions, like this example, can be hard to follow and add to tax code complexity.

When the tax code is frequently changed, revised, or repealed, this can add to the measure of complexity. The IRC, as amended, contains twenty-three phase-out provisions. The resulting inconsistencies in these provisions introduce significant complexity and hinder future tax planning (Mock et al., 2018). Modifications and repeals will evidently be required, as new situations in taxation will invariably emerge. Yet, it is essential to restrict the frequency of these changes, ensuring that taxpayers receive adequate information when such modifications occur.

Vague Language

Another contributing factor to the complexity of the tax code is the inclusion of unusual or vague language. Vague language contributes to complexity by introducing uncertainty regarding the potential outcomes of specific actions (Weber, 2015). When taxpayers face challenges in discerning details, for example, categorizing items as taxable or nontaxable or determining the appropriate tax withholdings, they encounter difficulties in accurately filing their taxes. The text within the IRC should be both specific and concise, facilitating the correct and timely payment of taxes.

An instance of such language is present in the "Distributions" section of the Internal Revenue Service (IRS) Publication 525, located under the "S corporation return" heading. This section says, "S corporation distributions are a nontaxable return of your basis in the corporation stock. However, in certain cases, part of the distributions may be taxable as a dividend, or as a long-term or short-term capital gain, or as both" (Internal Revenue Service, 2023). This wording can lead to uncertainties because of the vagueness of the text.

In reference to the text in Publication 525, it is uncertain how an entity's distribution will be recorded since the text is ambiguous, like much of the tax code (Dyreng et al, 2019). The entity will be unable to easily determine whether its distribution will be taxable or nontaxable. This type of language may be simple for a tax professional to understand, but for the average person with no background in the subject of tax, it can be difficult to grasp. This type of language adds to the complexity of the tax code, creating a barrier for everyday individuals seeking to navigate its nuances.

Extensiveness

The foremost contributor to the complexity of the tax code is, arguably, its substantial extensiveness. Burton & Karlinsky (2016) refer to the increase in tax laws and regulations as the source of complexity. Weber (2015) states that a large tax code with many words is complex. The sheer volume of information contained in the code poses a significant challenge, as most individuals lack the time and energy required to thoroughly read and comprehend all the necessary details. The extensiveness of the tax code is widely acknowledged as the primary aspect when addressing the complexity of the tax code.

Because of the extensiveness of the tax code, it can be difficult to easily navigate and find necessary information. The sheer amount of guidance, growing from 26,300 pages in 1984 to 76,608 pages in 2014, becomes a barrier for locating information (Burton & Karlinsky, 2016). When taxpayers are not able to locate information easily, it becomes a waste of their time and resources. This reason is why the extensiveness of the tax code needs to be investigated and reduced.

How Complexity is Measured

Measuring complexity is inherently challenging and can manifest itself in multiple ways (Zwick, 2021; Weber 2015). In the realm of tax code, the most effective approach to gauge complexity is through survey-based studies, given its dependence on qualitative factors. This review will be based on surveys conducted by others, initially examining the Tax Complexity Index (TCI) which holds significance as it introduces a new and innovative method to evaluate the complexity of tax code (Hoppe et al., 2023). The TCI will support in an in-depth investigation of the overall measure of complexity in the U.S. income tax code.

The TCI is a targeted assessment tool that gauges the intricacies of corporate income tax systems encountered by multinational corporations. Derived from surveys conducted with seasoned tax consultants at major international services, the TCI comprises two key sub-indices: the tax code and the tax framework sub-index. The TCI holds particular significance due to its exclusive focus on measuring tax complexity, promoting a consistent and transparent evaluation approach. This emphasis ensures a comprehensive understanding of the nuances involved (Hoppe et al., 2023). Given the TCI's capability to consider new perspectives and simultaneously assess multiple sub-indices, reviewing the conclusions reached by Hoppe et al. (2023) will aid in obtaining a more accurate gauge of U.S. tax complexity.

As noted earlier, surveying stands out as the predominant method for assessing complexity in tax codes. Another example of surveying is done by Blaufus et al. (2020) where they examine 128 empirical studies that gauge individuals' and corporations' tax perceptions. They found that corporate managers often confuse average and marginal corporate tax rates, with only 12.5% of private and 10.8% of public firms using the appropriate tax rate for their business decisions (Blaufus et al., 2020; Graham et al., 2017). Examining surveys will provide insights, like this, into the assimilation of the tax code complexity among entrepreneurs, multinational corporations, and small businesses. This analysis is instrumental in comprehending the degree of complexity embedded in the income tax code.

How Complex is the United States Tax Code

Strum (2021) focuses on the complexities faced by multinational corporations in terms of income tax. This particular research extends its scope to include Canada, the United States, and other countries within the Organization for Economic Co-operation and Development (OECD). Sturm (2021) found that the overall tax law complexity of the United States and Canada was very similar, with differences in certain tax laws. The study conducts a comparative analysis of the corporate income tax codes across 933 respondents from 100 countries, aiming to identify and understand the varying difficulty levels inherent in these codes, and will aid in the determination of the United States tax code complexity level.

The analysis of these comparisons was conducted through surveys of tax consultants from different firms and networks. These surveys asked respondents to measure the level of complexity of 15 different tax laws on a five-point scale. The assessment of a law's overall complexity involved respondents rating the extent to which five complexity drivers contributed to the complexity level. Using a five-point scale ranging from "no extent" to "very great extent", participants evaluated complexity drivers such as ambiguity and interpretation, change, computation, detail, and record keeping. The total complexity level of a law was subsequently computed as a weighted sum of these individual assessments, with a potential range of values from 0.00 (indicating low complexity) to 1.00 (indicating high complexity) (Strum, 2021).

When the total level of tax complexity was measured, compared to the other countries studied, the United States ranked 10th for the most complex tax system. The tax laws that the U.S. respondents signified as the most complex were transfer pricing (0.69), controlled foreign corporations (0.67), and local and industry-specific tax laws (0.66 with statistical significance at

the 0.01 level). In contrast, the least complex tax laws in the U.S. were laws on the statutory corporate income tax rate (0.34), royalties (0.38), and dividends (0.41). The complexity driver that most contributed to the complexity level of all selected tax code dimensions was detail, being the highest-rated complexity driver for 10 out of 15 tax code dimensions (Strum, 2021).

While both countries have more detailed tax codes, they exhibit less complex frameworks compared to the other nations included in the study (Sturm, 2021). By examining the values of complexity on tax laws in the United States, it can be determined that the United States has a medium-high level of complexity. The highest contributor to complexity level in the selected tax code dimensions was by far detail (Sturm, 2021). Studies that are not survey-based can also be used to evaluate the complexity level of the tax code.

A further examination of tax code complexity within the United States is undertaken by Zwick (2021). This particular study centers on corporations, specifically delving into the expenses associated with corporate complexity. Unlike survey-based studies, Zwick's (2021) research relies on statistical analysis. The study reveals that among 1.2 million corporate tax returns, only 37% claimed their entitled refunds. This pattern may be attributed to the technicalities inherent in the tax code.

This behavior defies a straightforward explanation through basic cost-benefit analysis, likely stemming from the influence of tax code complexity. This observation underscores the convoluted role played by the tax code in shaping corporate behavior when it comes to tax-related decisions (Zwick, 2021). In the absence of an explanation rooted in tax code complexity, there appears to be no other reason for corporations to not claim their entitled refunds. The author acknowledges that not all aspects of the impact of tax code complexity may have been fully captured, given its challenging nature to measure. Nevertheless, even within these constraints, clear evidence points towards medium to high complexity.

The final study introduces a novel survey-based metric known as the Tax Complexity Index. This instrument is crafted explicitly for evaluating the complexity of income tax systems across 100 countries, focusing on the perspective of multinational corporations (Hoppe et al., 2023). This tool holds significance not only for ongoing research but also promises to be highly beneficial for future research involving different business types and individuals. The TCI is able to provide a new perspective on tax complexity since it is based on multinational corporations instead of a single entity.

On a scale of 0 (not complex) to 1 (extremely complex), complexity levels were measured in relation to the overall tax code, framework, and TCI. The study revealed that the United States had a TCI of 0.37 (medium), a tax code complexity of 0.50 (high), and a tax framework complexity of 0.23 (low). The authors also found a positive correlation between gross domestic product (GDP) and tax code complexity, $r(98) = .52$, $p < .001$, which suggests that highly developed countries, like that of the U.S., have more complex tax codes. Population was also found to have a positive correlation relating to tax code complexity, $r(98) = .51$, $p < .001$. This implies that highly economically developed countries, such as the United States, tend to exhibit more complexified tax codes (Hoppe et al., 2023).

Hoppe et al. (2023) concluded that this correlation might be indicative of a commitment to fostering fair and equitable tax policies in these countries. The heightened complexity of tax codes within such nations might be constructed as a manifestation of these policy objectives. Thus, it was found that the United States has a medium-complexity TCI, a high-complexity tax code, and a low-complexity tax framework. This was similar to the outcomes of the other studies observed.

With the evaluation of this research, the conclusion is able to be reached that the United States has a medium to high level of tax code complexity that is very multi-faceted (Strum, 2021; Hoppe et al., 2023). The rigors of the tax code play a significant role in shaping the behavior of businesses, as observed in the studies. The medium to high level of complexity found within the tax code can have serious implications on the way taxpayers understand the tax code. Revisions to this complexity level need to be undertaken to ensure proper comprehension by taxpayers.

THE TAX PROFESSIONAL POINT OF VIEW

In the context of this review, knowing how tax professionals perceive tax complexity is crucial, serving as a barometer for the potential challenges faced by the average person. A study done by Burton and Karlinsky (2016) examined the top areas of perceived complexity affecting large businesses. Using surveys that asked 109 tax professionals to rate the complexity of 40 different areas of tax law on a five-point scale (one being "extremely complex" and 5 being "not complex"), the authors were able to conclude about the perception of tax law complexity in the eyes of different tax professionals (Burton & Karlinsky, 2016). The study showed some significant findings in relation to tax law complexity perception.

Many tax areas were rated as being extremely complex with foreign mergers and acquisitions being the most complex issue and deferred income taxes being the second most complex issue. Foreign mergers and acquisitions had an overall average score of 1.637 and deferred income taxes had an average score of 1.840 between both public and private tax professionals. The average ratings of these two areas indicate high complexity and half of all areas are rated above 3.000, indicating medium to high complexity (Burton & Karlinsky, 2016). According to t-tests conducted, the perceived complexity of 13 out of the 40 tax issues showed statistical significance at the .01, .05, or .10 level. While the authors wanted to view the perception of tax professionals working in the public sector versus the private sector, they also wanted to gauge the effect the amount of experience would have on complexity views.

Whether working for a corporation or a public accounting firm, tax professionals, irrespective of their experience ranging from 5 years to 25 years, consistently regarded a specific aspect of the tax code as sophisticated. This study revealed no substantial variation in the perceived complexity of tax factors based on experience or between public accounting and corporate tax departments. For example, tax professionals with greater than 20 years of experience ranked foreign mergers and acquisitions an average of 1.508 and professionals with less than 20 years of experience ranked it at 1.721. These differences are significant at the .05 level. The results of this study could have potential policy implications (Burton & Karlinsky, 2016).

The widespread complexity of the tax code raises significant concerns, particularly as tax professionals are expected to possess high comprehension skills related to the tax code. Due to the complexity, small businesses may find it necessary to hire tax professionals, but this process may be prolonged and costly since even professionals themselves encounter difficulty understanding the code (Burton & Karlinsky, 2016; Feldman et al., 2016). The challenge stems from a considerable portion of professionals struggling to comprehend USC 26, potentially resulting in unavoidable costs for both small businesses and taxpayers. One example of issues stemming from the complexity of the tax code is the U.S. tax gap.

The term "tax gap" denotes the unpaid and voluntarily unreported tax liability in the United States. The most recent U. S. tax gap amounts to $496.0 billion (U.S. Department of Treasury, 2022). The potential leading cause for this tax gap emerges as the inability to comprehend the tax code. A comprehensive recognition of the tax code is indispensable for the timely payment of taxes, and a deficiency in such comprehension could result in billions of taxpayer dollars remaining unpaid.

HOW TO IMPROVE THE TAX CODE

Reduction in Length

The enhancement of USC 26 is deemed crucial for the future welfare of taxpayers and the IRS. Ensuring

the comprehensibility of the tax code is imperative to prevent further complications within the taxpaying system, such as the tax gap. Oprea's (2020) study underscores that individuals naturally gravitate towards simplicity, pointing out the need for simplification in the tax code. Reducing the voluminous information within the tax code, which currently spans 76,608 pages, is deemed essential (Burton & Karlinsky, 2016). This extensive length poses challenges even for professionals and warrants immediate simplification.

Simplify the Language

The language within the income tax code requires revision, as highlighted by examples from Publication 525 on Taxable and Nontaxable Income. Excerpts like "The option privilege for an option to buy" exemplify vague and unusual wording, which, while potentially decipherable for professionals, proves challenging for the average person (Internal Revenue Service, 2023). The use of such unclear language extends to other sections, such as the S Corporation Income section, introducing ambiguity in addressing taxable and nontaxable distributions, as discussed earlier. The consequence of vague or unusual wording is difficulty in comprehension, leading to uncertain outcomes in income tax filings (Weber, 2015). This need for language revision not only impacts taxpayers understanding but also contributes to uncertainties in the outcomes of income taxes.

Clarification and Accessibility

The need for clarity extends to Artificial Intelligence (AI) applications, which can play a pivotal role in modernizing the tax system. While the initial costs of implementing AI may be substantial, the potential benefits include reduced administration and compliance costs for both the tax authorities and taxpayers (Saragih et al., 2023). AI applications have the capacity to comprehend and restructure documents like the income tax code, improving its clarity and reducing its length. Collaboration with tax professionals for adjustments ensures the refined tax code aligns with practical needs.

Technology serves as a potential solution to address both the convolutions and lack of transparency in tax matters, and it also plays a role as a contributing factor (Walker, 2022). The application of AI has the potential to ease the burden associated with tax complexity, though efforts are required to enhance its accessibility. Navigating through the United States Code can be a challenging endeavor, and improving online access to the Code would rectify this issue.

HOW TO IMPROVE TAXPAYER UNDERSTANDING

The primary challenge of the tax code lies in the subjectivity of its complexity. An excerpt of tax code perceived as difficult by one group might be easy to understand by another. Increasing exposure to similar topics or excerpts with comparable difficulty levels can enhance critical thinking and memory skills for taxpayers attempting to understand the Code (Eastern Washington University, 2022). The cornerstone for improving taxpayers' comprehension of the tax code is education on the subject and increased reading on the topic of taxes.

While schools in the U.S. often cover the topic of paying taxes and the associated benefits, there is a notable lack of emphasis on the material provided by the IRS and the complex comprehension skills required to understand it. Reading comprehension can increase the ability to solve problems, which is necessary when trying to understand the income tax code (Eastern Washington University, 2022). Introducing required reading materials related to taxation during high school education could significantly contribute to the improved interpretation of the tax code in the future.

Repetition through reading tax code related materials could be something that increases the comprehension skills of taxpayers in the United States. The intervention known as repeated readings (RR) is an evidence-based comprehensive approach involving multiple readings, error correction, and feedback. Using this approach minimizes the cognitive demands associated with decoding and word recognition, thereby enhancing comprehension (Fite et al., 2021). Implementing programs that encourage repeated exposure to the tax code could prove beneficial to taxpayers. Such programs should be made widely available in the United States school system, as comprehension skills are not only essential for awareness in relation to tax codes but also for individuals' day-to-day lives.

Since there will always be people who are not inclined to advance their comprehension skills in relation to tax code, they should also be informed about the consequences that could come from the inability to comprehend it. This would inform taxpayers about their liabilities and the consequences of non-compliance with tax regulations (Baneng, 2023). Explaining the consequences would motivate individuals to perform repeated readings of the tax code, as well as teach them the importance of tax compliance, which is easier when they can comprehend the information they are reading. Using the strategy of repeated readings and informative classes on the consequences of noncompliance could be a very useful strategy to increase comprehension skills among taxpayers.

By combining informative classes addressing tax forms, the tax code, and necessary information to comprehend USC 26, these educational efforts could prove to be highly beneficial for all taxpayers. The lack of knowledge among taxpayers needs to be corrected with superior information (Stantcheva, 2020). Literacy is arguably the most important competence to teach and therefore needs to be implemented in alignment with the tax code for deeper comprehension (Eastern Washington University, 2022). This would empower individuals with the knowledge and skills to navigate the tax system, which not only enhances compliance but also fosters a better cognizance of the broader financial implications for individuals and society.

TAX KNOWLEDGE AND TAX COMPLIANCE

Research conducted by Bornman et al. (2019) emphasizes the crucial link between taxpayers' knowledge and tax compliance. The study revealed a significant factor contributing to non-compliance among small businesses: the lack of understanding of tax laws. For instance, when examining responses from small business owners, the researchers found that the intricate jargon within the tax code posed a considerable challenge, leading participants to advocate for simplified language. Their analysis of 78 statements uncovered that 65% of respondents believed tax laws were so complex that accurately completing their tax returns became very challenging (Bornman et al., 2019). These findings indicated the need for a deeper knowledge of tax law within small businesses.

These small business owners were found to all be well-educated, but they were not well versed in tax codes, which could be the reason they were having difficulties with its complexity. These small business owners expressed a willingness to comply with tax regulations, which highlighted the positive association between higher education levels and willingness to comply with tax laws (Bornman et al., 2019). This is the reason the complexities of the tax code need to be learned by individuals before they ever encounter it in the real world. If they have this understanding, they are more likely to comply with tax laws and regulations.

Bornman et al. (2019) also explain that tax education should extend beyond technical and procedural knowledge, it should also encompass an increased awareness of the motivation that accompanies a voluntary compliant attitude. This comprehensive approach aligns with the notion of engaging taxpayers in RR of tax code and educating them about the consequences of non-

compliance. By broadening the scope of tax education, taxpayers can navigate the complexities of the tax code. This will address the root cause of non-compliance by enhancing taxpayer understanding.

CONCLUSION

This review investigates the ramifications of tax code complexity on small businesses. By assessing various survey-based studies, it can be determined that the complexity level within the United States tax code falls within the range of medium to high (Strum, 2021; Hoppe et al., 2023). The surveys analyze the perspectives of diverse business entities. Also included in the research is a study based on the perceptions of tax professionals, and it determined that they perceive the tax code to have a medium to high level of complexity (Burton & Karlinsky, 2016). The reasons behind the complexity of the tax code were also investigated.

The complexity of the tax code arises primarily from its extensive nature, unconventional and vague language usage, and frequent revisions. Recognizing these factors provides insights into the necessary changes for enhancing the comprehensibility of the tax code for a broader audience. Small businesses, lacking access to resources like tax professionals, face distinct challenges due to these complexities. The task of improving the tax code is more manageable than it might appear.

The initial step in enhancing the tax code involves significantly reducing its length. Since the tax code is so extensive, it can be difficult for taxpayers to completely comprehend. AI could serve as a valuable tool in decreasing the length of the tax code while also increasing its readability. AI's capability to analyze extensive documents enables the identification of areas that require modifications for improved readability, while also facilitating the reduction of its length (Saragih et al., 2023). This could be used in conjunction with advanced tax specialists to decrease the overall length of the tax code.

Another aspect of the tax code that adds to its complexity is the frequent revisions and repeals within it. It is important to note that these revisions will be necessary since new situations in taxation will always occur. Still, the frequency of these changes needs to be reduced since revisions can hinder future tax planning (Mock et al., 2018). Taxpayers should also be properly informed when such modifications are made.

An additional aspect requiring improvement for the reduction of tax code complexity is the comprehension skills of the readers. The improvement of comprehension skills could come from repeated readings of tax code excerpts. Using this approach minimizes the cognitive demands associated with decoding and word recognition, thereby enhancing overall comprehension (Fite et al., 2021). Doing RR while also teaching taxpayers the consequences of their noncompliance could help motivate them to learn better comprehension skills.

Through the combination of these enhancements, the complexity of the tax code can be substantially diminished. This would be particularly beneficial for small businesses grappling with the convolutions of the income tax code. This would streamline the tax process for small businesses, lowering tax costs and ensuring timely tax payments. The successful implementation of these improvements is anticipated to result in a reduction of the tax gap and an overall enhancement of the Internal Revenue System.

FUTURE RESEARCH

A future area of research that would be impactful on the study of tax code complexity would be a TCI-based survey of small businesses. It would also be helpful to have a TCI study from the perspectives of individuals since there is limited research on the thoughts and opinions of these

groups. This study could help policymakers understand what specific segments of the tax code these groups find most problematic, so they can look to improve them in the future.

Another promising future area of study could focus on the long-term effects and practical implementation of the proposed improvements to the tax code. Research could delve into the real-world application of artificial intelligence in tax code revisions, analyzing its effectiveness, challenges faced, and implications for both businesses and tax authorities. The analysis of these improvements, specifically on small businesses, could be especially insightful.

Additionally, studying the outcomes of educational programs using RR in relation to the tax code and teaching the consequences of noncompliance with taxes would provide valuable insight into the impact that taxpayer comprehension has on the complexity of the tax code. It would also be impactful to see if the programs could be helpful for small businesses or taxpayers struggling to navigate the complexity of the tax code. These would all be helpful areas to study in relation to tax code complexity.

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RETAIL INVESTOR PARTICIPATION AND MARKET VALUATIONS IN THE ZERO-COMMISSION TRADING ERA

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ABSTRACT

This paper explores the relationship between retail investor participation rates (RP) and United States' equity valuations as well as equity market risk premiums from 2010-2023. Retail participation grew from 10.1% to 18% over this timeframe while valuations grew over 25% and equity risk premiums declined by 15%. Our analysis focuses on relationships between retail participation rates (RP) and market valuation metrics, including S&P 500 price-to-earnings (P/E), price-to-book (P/B), and price-to-sales (P/S) ratios while controlling for market risk measures like bond yields (10 YR), risk free rates (FFR), equity risk premiums (ERP), and volatility (VIX). Findings reveal retail participation exhibits a strong direct relationship with higher market valuations both uncontrolled and after controlling for the effect of market wide and macroeconomic covariates. This suggests retail investors have been a significant driver of rising P/E, P/B, and P/S ratios over the study period. Additional analysis points to retail trading contributing slightly to lower equity risk premiums without materially impacting volatility over the study period.

Key words: retail participation, valuation, risk premium, equity markets

INTRODUCTION

Over the past decade, the number of retail traders participating in the United States (US) equity markets has increased substantially. The leading cause of this increase was the rise of inexpensive and easy-to-use brokers like Robinhood, which first entered the market in 2013 (Curry, 2024). These brokers provide market access to individuals lacking significant financial acumen (Abramson, 2017) and to those who previously could not afford to participate in the market. The jump in retail participation can be seen as the percentage of retail participation in the markets increased from just 10.10% in the first quarter of 2010 to 18% in the second quarter of 2023.

This paper explores the relationship between retail investor participation rates (RP) and the stock market. This paper examines the parallel behavior between the RP increase and the valuations of public companies and the cost of equity. Quarterly data was taken from the first quarter of 2010 to the second quarter of 2023. The data points that were collected were RP, volatility index (VIX), the federal funds rate (FFR), equity risk premiums (ERP), US 10-year yield (US10Y), cost of equity (COE), price-to-earnings ratio for S&P 500 companies (S&P P/E), the Shiller price-to-earnings ratio (Shiller P/E), the S&P price-to-book ratio (S&P P/B), and the S&P price-to-sales ratio (S&P P/S). Our statistical analysis suggests that retail participants have increased valuations above what would be considered historical norms while lowering the cost of equity and having no material effect on volatility.

LITERATURE REVIEW

Retail Investors

Retail investors are nonprofessional investors who trade assets such as stocks, bonds, securities, mutual funds, and exchange-traded funds. These assets play critical financial roles not only in the business world but also in average households in the United States (U.S.). In 2022, US households kept around 39% of their financial assets in shares and other equity, which is among the highest in the world (OECD, 2024). In 2023, stock ownership in the United States reached its highest level since 1998 (Gallup, 2023). Retail investors hold 88% of the US mutual funds in 2022 (Investment Company Institute, 2023).

Scholars study retail investor behavior from many angles, such as how they herd (Barber et al., 2009), use information (Barber et al., 2022), and influence stock returns (Kumar & Lee, 2006).

Retail investors react to the way information is presented to them (Barber et al., 2022), which increases the disposition effect (Frydman & Wang, 2020) and can lead them to high-fee (Choi et al., 2010) or low-fee funds (Kronlund et al., 2021). Retail investors differ from one another in this behavior. Robinhood investors do more attention-induced trading than other retail investors (Barber et al., 2022; Ozik et al., 2021). The design of the app plays a critical role in this behavior. Robinhood investors show an interest in larger stocks, which have historically had high levels of share and dollar trading volume (Welch, 2022).

While some studies concluded that retail investors make uninformed decisions (Barber & Odean, 2000; Fisch & Wilkinson-Ryan, 2014), others (Barber et al., 2009; Boehmer et al., 2021; Kaniel et al., 2008; Kelley & Tetlock, 2013) contrasted with this view by indicating the impact of retail investor activities on stock returns. However, retail investors can be selective when using information. For example, they prioritize economic performance information over governance and corporate social responsibility disclosures (Cohen et al., 2011; Moss et al., 2020), temporarily ignore their investments during market downturns (Karlsson et al., 2009), and respond to the market returns following the earnings announcements rather than the earnings themselves (Michels, 2024). Consistent with the attention-driven trade literature (Aboody et al., 2010), both more positive and more negative earnings news increase the number of retail investors holding a firm's shares (Michels, 2024).

Zero-Commission Era

Platforms such as Robinhood have been described as impacting the trading markets by increasing retail participation, putting pressure on traditional brokerages, democratizing trading, and influencing market dynamics.

Removing the commissions and simplifying the trading process allowed more retail investors to join Robinhood. Since 2013, Robinhood has experienced exponential growth in its users (US SEC, 2021). Given these trends, major brokerage giants such as Interactive Brokers, Charles Schwab, TD Ameritrade, E-Trade, Ally Invest, and Fidelity offered zero commissions in 2019.

Some argue that platforms like Robinhood democratized finance markets by attracting retail investors and offering user-friendly features (Capelj, 2021); others, including Massachusetts Securities Regulators (Commonwealth of Massachusetts, 2020), criticize the platform for simply realizing capitalistic gains by encouraging frequent and riskier trading behaviors (Cable, 2022; Tan, 2021). Robinhood agreed to pay a fine and overhaul its practices to address the complaints of the Massachusetts Securities Regulators (Raymond, 2024).

Retail Investors and Market Dynamics

Researchers examined the behavior of retail investors and its impact on market dynamics, including prices, earnings, and risks. Some research on stock prices explains the change in stock returns with retail investor attention (Da et al., 2011; Huberman & Regev, 2001), by studying indicators such as the Google Search Volume Index (Andrei & Hasler, 2015; T. Chen, 2017; Z. Chen & Craig, 2023; L. Han et al., 2017; Swamy et al., 2019).

Studies report the impact of retail investors on stock prices, listing factors such as intense buying and selling (Boehmer et al., 2021; Kaniel et al., 2008), large vs small retail investors (H.-L. Chen et al., 2015), active retail investor attention (Z. Chen & Craig, 2023), retail short selling (Kelley & Tetlock, 2017), high retail trading proportion (B. Han & Kumar, 2013), and retail order imbalance (Barber et al., 2023). However, studies, such as the ones on the Taiwan (H.-L. Chen et al., 2015) and Australian (Henker & Henker, 2010) stock markets, contrast by indicating that retail investor trading behavior cannot predict future returns.
The retail investor behavior has been linked to stock market liquidity (Adachi et al., 2017; Aouadi et al., 2013, 2018; Barrot et al., 2016; Cheng et al., 2021; Ding & Hou, 2015), volatility (Kang et al., 2014; Rupande et al., 2019), and abnormal trading behavior (Kupfer & Schmidt, 2021).
Researchers studying the impact of retail investors on stock price volatility observed an increase in stock market volatility along with the retail investors' attention to firm new releases (Ballinari et al., 2022), message board discussions (Antweiler & Frank, 2004), posting volume on social media platforms (Audrino et al., 2020), number of queries on search engines (Dimpfl & Jank, 2016; Goddard et al., 2015; Hamid & Heiden, 2015), and Twitter activity (Rakowski et al., 2021). Financial crises also strengthen the link between retail trading and volatility (Baig et al., 2023).
As an essential component of the risk and return analysis, understanding the retail investor behavior toward equity risk premiums is critical to understanding their impact on the market. Risk premia increases with investor attention to news and uncertainty (Andrei & Hasler, 2015). Risk-seeking behavior is impacted by the time of the year, as retail investors seek risk at year and due to renewed optimism (Z. Chen et al., 2021). Our study considers if there is a market-wide effect on equities over a long window (from 2010 through 2023) controlling for market-wide risks and macroeconomic effects. While many of the previous studies have found various market reactions, we are considering more broad-based market measures. Previous work has suggested that retail participation is a fundamental change in market participation that has resulted in discernable effects in the equity markets. We built on that result to investigate broader equity market implications.

DATA

The variables used provide insight into retail participation rates, market risk measures, and market valuations. These variables were collected quarterly from the first quarter of 2010 to the second quarter of 2023. The retail participation rate data was directly acquired from the Bloomberg Terminal data, which was estimated by Bloomberg Intelligence. It was calculated based on the US Equity Volume (%) by market participants. It was only available since Q1 of 2010 at the time of writing.
The variables: Equity Risk Premiums (ERP), Federal Funds Effective Rate (FFR), Market Risk Premiums (MRP), US 10Y T-Bond Yield (US10Y), and Volatility Index (VIX) are used to examine the market risk. Lastly, the variables: the S&P 500's price-to-earnings ratio, price-to-book ratio, price-to-sales ratio were used to study market valuations. All variables were acquired for every month, and they all had historical data that went further back than Q1 of 2010 but due to retail participation data only being available since Q1 of 2010, the only months of data looked at from these variables were the points after 2010. These data points were converted from a monthly format to a quarterly format so that they matched with the retail participation data points. To perform this conversion, the average of the months in each quarter was taken. Not all of the variables were used in the final output since by testing these variables, we were able to tell which of the market risk variables and which of the market valuation variables would best fit in the final statistical models to make a conclusion about the impact of retail participation on market risk and market valuations.
<u>Measurements & Proxies Used:</u>

a. Retail Investor Participation Rates (RP)
b. Market Risk Measures –
    i. Market Risk Premiums (MRP)
    ii. US 10Y T-Bond Yield (US10Y)
    iii. Cost of Equity (COE)

iv. Effective Fed Funds Rate (FFR)
v. CBOE S&P 500 Volatility Index (VIX)

c. Market Valuations –
i. S&P 500 TTM PE Multiples (S&P P/ E)
ii. S&P 500 TTM PB Multiples (S&P P/ B)
iii. S&P 500 TTM PS Multiples (S&P P/ S)

Data Sources:

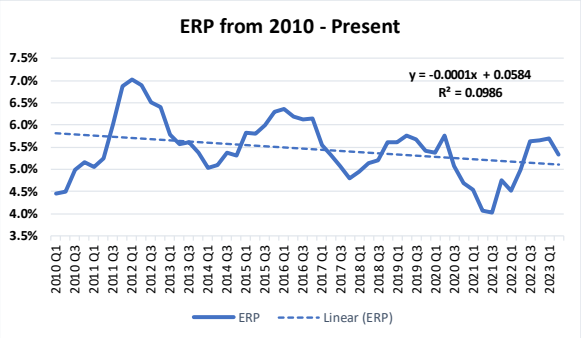
As mentioned above, retail participation data was acquired through the Bloomberg Terminal. Four variables were collected to measure market risk: Equity risk premiums (ERP) and 10-year Treasury yields (US10Y) were acquired from Damodaran. The Federal Funds Rate (FFR) was acquired from the St. Louis Fed. The volatility index (VIX) variable and the S&P 500 PE ratio came from Macrotrends. The other market valuation data was acquired from Multpl. Please see the References for links to the data sites.

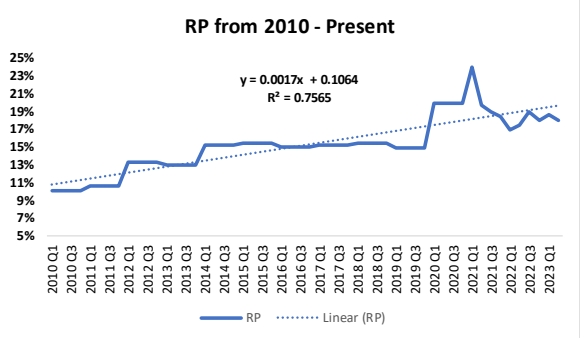
As described above, we looked primarily at three factors, namely, Retail Investor Participation Rates (RP), Market Risk Measures and Market Valuations and used a variety of proxies for the latter two.

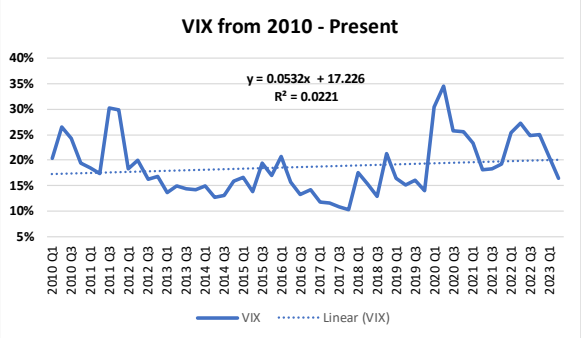
Stat	RP	VIX	FFR	ERP	US10Y	COE	S&P P / E	Shiller P / E	S&P P / B	S&P P / S	VIX Demean
Mean	15.25%	18.69	0.79%	5.47%	2.28%	7.75%	21.34x	27.23x	3.00x	1.91x	0.00
Standard Error	0.41%	0.77	0.16%	0.09%	0.10%	0.13%	0.63x	0.64x	0.10x	0.07x	0.77
Median	15.20%	17.22	0.16%	5.40%	2.28%	7.92%	21.97x	26.94x	2.88x	1.87x	-1.47
Standard Deviation	3.03%	5.63	1.15%	0.67%	0.76%	0.96%	4.64x	4.69x	0.75x	0.50x	5.63
Sample Variance	0.09%	31.68	0.01%	0.00%	0.01%	0.01%	21.49x	22.00x	0.56x	0.25x	31.68
Kurtosis	28.75%	0.14	416.96%	1.31%	-18.18%	62.21%	1.63x	-0.41x	-0.50x	-0.44x	0.14
Skewness	30.35%	0.87	205.78%	19.81%	3.89%	-90.27%	0.93x	0.38x	0.54x	0.38x	0.87
Range	13.90%	24.18	4.93%	3.00%	3.18%	4.11%	22.16x	18.11x	2.88x	1.94x	24.18
Minimum	10.10%	10.31	0.06%	4.03%	0.64%	5.36%	13.96x	19.94x	1.85x	1.10x	-8.38
Maximum	24.00%	34.49	4.99%	7.03%	3.83%	9.48%	36.12x	38.05x	4.73x	3.04x	15.80
Sum	823.35%	1009.25	42.57%	295.22%	123.08%	418.30%	1152.39x	1470.20x	162.09x	102.99x	0.00
Count	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00

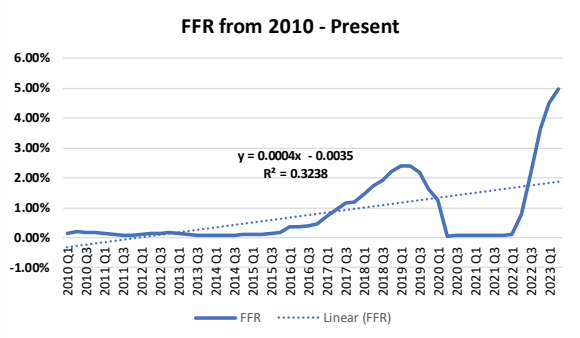
The table above shows descriptive statics for the 11 variables that we considered in this study. There were 54 observations for each variable from the 54 quarters observed (2010-2023). The average retail participation was 15.25% and the median was 15.20% with a range of 13.90%, starting at 10.1% and ending at 18.0% as of Q2 of 2023.

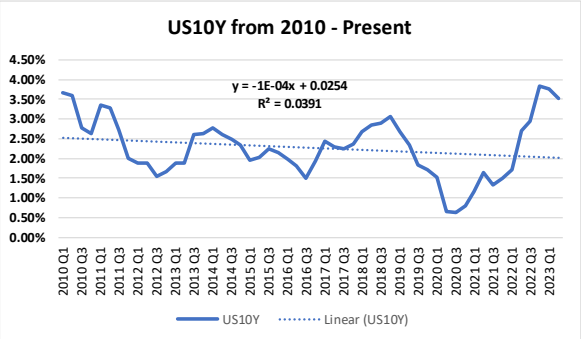
Since retail participation is naturally correlated with time over the study period, a reasonable concern is a spurious correlation between time and the other variables. The graphs show that correlation between retail participation and time as well as between market valuations (P/E) and time, with similar trajectories but a larger bump up and down during the COVID period. Both the macro (US10Y, FFR) and market (ERP, cost of equity or COE) measures are much less correlated with time. Since time by itself is neither a driver of retail participation nor valuations, this lends itself to the conclusion that retail participation has a relationship with valuations exclusive of time.

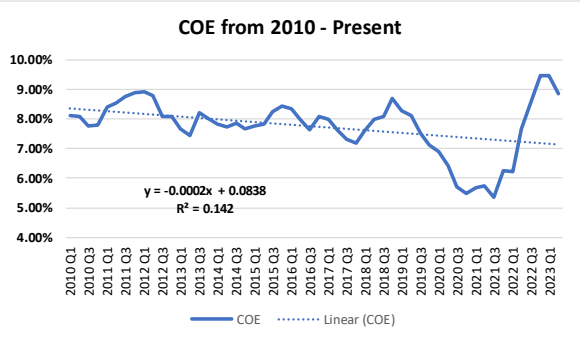

ERP from 2010 - Present
y = -0.0001x + 0.0584
R² = 0.0986
ERP
Linear (ERP)

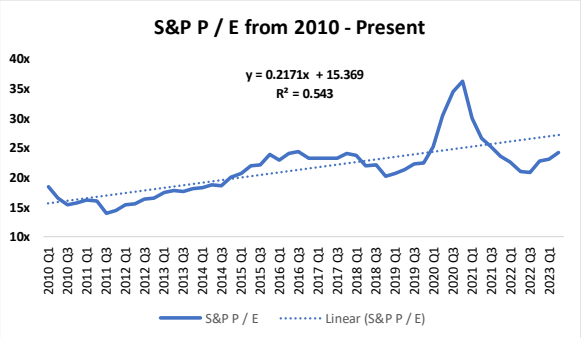

RP from 2010 - Present
y = 0.0017x + 0.1064
R² = 0.7565
RP
Linear (RP)

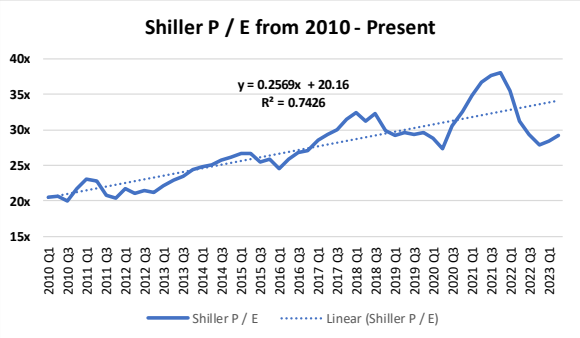

VIX from 2010 - Present
y = 0.0532x + 17.226
R² = 0.0221
VIX
Linear (VIX)


FFR from 2010 - Present
y = 0.0004x - 0.0035
R² = 0.3238
FFR
Linear (FFR)


US10Y from 2010 - Present
y = -1E-04x + 0.0254
R² = 0.0391
US10Y
Linear (US10Y)


COE from 2010 - Present
y = -0.0002x + 0.0838
R² = 0.142
COE
Linear (COE)


S&P P / E from 2010 - Present
y = 0.2171x + 15.369
R² = 0.543
S&P P / E
Linear (S&P P / E)


Shiller P / E from 2010 - Present
y = 0.2569x + 20.16
R² = 0.7426
Shiller P / E
Linear (Shiller P / E)

STATISTICAL ANALYSIS & FINDINGS

Beginning with a simple correlation table among our variables shows a relationship between retail participation levels (RP) and market valuation metrics (P/E, P/B, P/S) but less so among the control (confounding) variables.

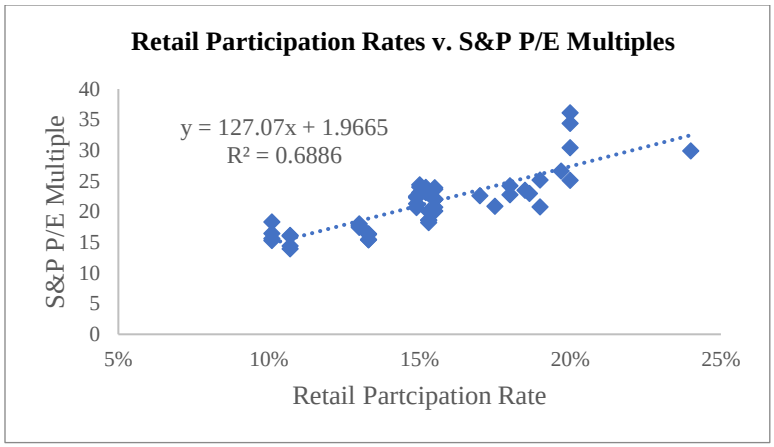
Var	VIX	FFR	ERP	US10Y	COE	S&P P / E	Shiller P / E	S&P P / B	S&P P / S	RP
VIX	100.00%									
FFR	(5.16%)	100.00%								
ERP	(2.62%)	1.32%	100.00%							
US10Y	(12.04%)	48.52%	(10.68%)	100.00%						
COE	(11.36%)	39.29%	61.80%	71.57%	100.00%					
S&P P / E	14.57%	14.48%	(34.91%)	(51.89%)	(65.56%)	100.00%				
Shiller P / E	(4.11%)	27.21%	(56.03%)	(29.02%)	(62.30%)	71.46%	100.00%			
S&P P / B	8.62%	40.09%	(50.20%)	(24.23%)	(54.42%)	73.09%	92.90%	100.00%		
S&P P / S	2.35%	30.32%	(50.75%)	(35.13%)	(63.43%)	80.46%	95.61%	98.18%	100.00%	
RP	20.02%	26.49%	(29.04%)	(43.44%)	(54.75%)	82.98%	78.50%	83.97%	85.29%	100.00%

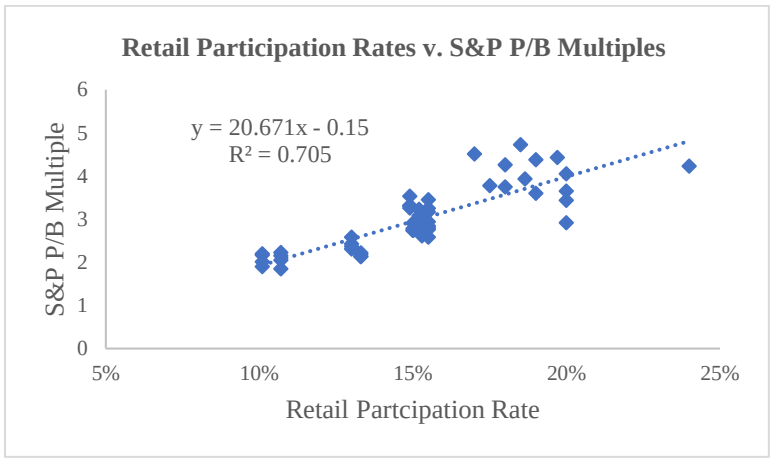
1) Increasing Retail Participation (RP) has led to increasing market valuations (P/E, P/B, & P/S multiples).

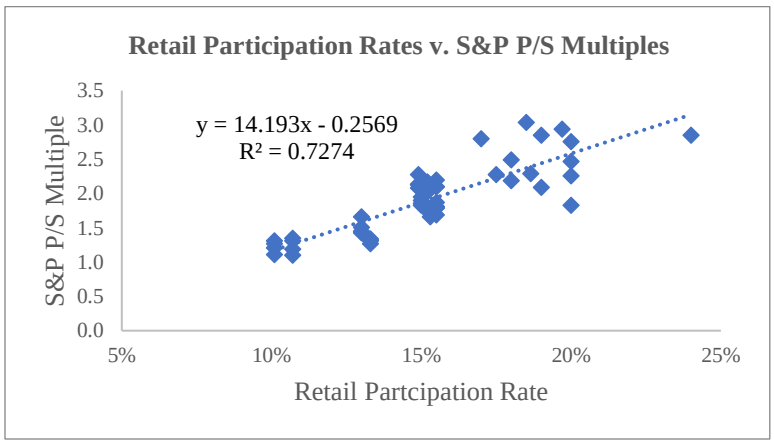
Univariate Regressions

	RP	p-value	R-sq	Obs.
S&P P/E	127.07	0.00	68.9%	54
Shiller P/E	121.63	0.00	60.9%	54
S&P P/B	20.67	0.00	70.0%	54
S&P P/S	14.19	0.00	72.7%	54
VIX	37.22	0.15	4.0%	54
ERP	-0.065	0.03	8.0%	54
COE	-0.17	0.00	30.0%	54

To determine if there was any noticeable impact of increasing retail participation rates on market valuations over the past 13 years / 54 quarters, we ran univariate regressions using market valuation metrics like S&P P/E, P/B, & P/S as the Dependent (Y) variable, and Retail Participation Rate (RP) as the Independent Variable (X). As can be seen in the univariate results, we found a solid relationship between Market Valuations and Retail Participation, with an R^2 value of 68.9% and a statistically significant p-value of 0.00% for the S&P P/E. Similar results are seen for the other valuation metrics: Shiller P/E, P/B, and P/S.







Note that while Retail Participation (RP) demonstrates a strong positive correlation with Market Valuation metrics, it has a negative correlation with Equity Risk Premiums (ERP) and the Cost of Equity (COE), and no discernable relationship with volatility (VIX). Perhaps there were other market drivers of valuations that were also correlated with Retail Participation (RP) leading to both effects. Decreasing US10Ys have also contributed to increasing market multiples, which is to be expected, as they serve at the risk-free rate in the discount rate calculation used in valuation methodologies. To put this hypothesis to the test, controls for the macroeconomic environment as well as equity costs were included in the regressions of market valuations on retail participation rates.

Valuation Metrics on Retail Participation (RP) and control variables. (*p<0.10, ** p<0.05, ***p<0.01)

	S&P P/E					Shiller P/E	S&P P/B	S&P P/S
Intercept	1.96	1.72	7.22*	6.67**	24.1***	38.5***	3.7***	2.8***
RP	127.1***	130.3***	121.8***	114.1***	78.5***	76.8***	13.1***	8.8***
FFR		-32.55			89.1**	110.8**	24.6***	14.3***
ERP			-81.44		-171.8***	-316.6***	-42.0***	-29.8***
US10Y				-119.6**	-263.7***	-170.8**	-23.6**	-22.4***
VIX					-0.003	-0.14**	-0.01	-0.01**
Adj R-sq	68.9%	68.3%	69.0%	70.9%	74.3%	78.4%	82.8%	82.3%
Obs.	54	54	54	54	54	54	54	54

Even with the control variables, Retail Participation (RP) remains positively correlated with all four market valuation metrics and is statistically significant despite significance accruing to the control variables. As expected, both the US 10-year Treasury Yield (US10Y) and the Equity Risk Premium (ERP) exert downward pressure on valuation metrics since increases in them coincide with increases in interest rate spreads. Including these variables along with Retail Participation (RP) reduces the effect of RP on valuations, but the magnitude and significance of RP is still significant.

2) While valuation metrics are rising with Retail Participation (RP) rates, the cost of equity and equity risk premium are declining due to the additional involvement of retail traders.

	COE			ERP	
Intercept	0.10***	0.08***	0.09***	0.09***	0.07***
RP	-0.17***	-0.09***	-0.16***	-0.16***	-0.07**
US10Y		0.75***	0.39**	-0.61***	
FFR			0.31***	0.32***	
Adj R-sq	28.6%	56.4%	63.0%	25.0%	6.7%
Obs.	54	54	54	54	54

This increase in retail participation is effectively an increase in the supply of financing (funding), or, said another way, an increase in the demand for securities that represent the financing; thereby, lowering the cost of equity and reducing the equity risk premium (negative coefficients on RP). In this specification note that the Fed Funds Rate (FFR) increases the Cost of Equity (COE) and the Equity Risk Premium (ERP) as would be expected (and in both it is statistically significant). The US 10-year rate (US10Y) on the other hand as opposite effects on the Cost of Equity (COE) compared to the Equity Risk Premium (ERP); this is expected since the increase in interest rates would provide alternatives to equity investors, increase the Cost of Equity (COE), but this same mechanism closes the risk premium for equities over the risk-free rate.

ADDITIONAL ANALYSES

Further scrutiny of the data reveals some intriguing nuances behind the influence of retail investors. Although retail participation correlates strongly with all valuation metrics, the relationship is most pronounced for price-to-earnings ratios and least impactful on price-to-sales multiples. This suggests valuations may be detaching from fundamentals like earnings, becoming more divorced from company profitability fundamentals and increasingly driven by speculation.

Additionally, while average volatility has not changed over the period, deviations have recently appeared slightly higher. This could indicate amplifying oscillations between tranquility and turbulence, which may also arise from the uptick in less-informed retail trading. Separating the time window being studied into smaller segments would allow for a focus on retail participation and volatility to be explored but the reduced sample size would weaken the statistical inference.

Lastly, the slight decrease in equity risk premiums fails to correspond proportionally with the valuation expansion. So, retail activity has provided more capital to equity markets, reducing risk premiums as expected but not nearly enough to justify current pricing levels.

In totality, the data paints a picture of valuations increasingly fueled by retail investor optimism rather than rational expectations of profit generation. The influx of speculative retail activity seems responsible for pushing markets into more capricious territory marked by overvaluation and pockets of instability. Monitoring for asset bubbles and safeguarding against excessive volatility should feature prominently in regulatory discussions if retail participation marches higher.

CONCLUSION

The analysis provides compelling evidence of a predictive relationship between increasing retail investor participation rates and rising US equity market valuations over the past decade. Even after controlling for the downward pressure on yields, higher retail participation percentages correlate strongly with expanding P/E, P/B, and P/S multiples. This indicates retail investors have played a pivotal role in inflating equity valuations above levels justified by fundamentals as suggested by historical P/E levels.

The data shows that rising market valuations have been driven primarily by increasing retail participation rather than declines in 10-year Treasury yields, which remained relatively stable over the period studied. Retail participation exhibits a far stronger direct relationship with valuations than yields.

One concern is that rising valuations are leading to more retail participation. In addition to event studies in previous research that suggests retail participation influenced equity markets rather than the other way around, it is not clear that rising valuations or falling equity risk premiums would induce retail participation; it is more likely that they would signal a missed opportunity rather than one in front of retail investors.

In summary, surging retail participation appears responsible for overly buoyant valuations in US equity markets over the last 10+ years. The analysis points to retail investor behavior serving as a significant contributor to the disconnect between market values and underlying corporate earnings potential. As the democratization of trading continues, it will be critical to monitor whether this retail-driven escalation in equity prices contributes to additional market volatility or instability down the line.

DATA SOURCES

1) Retail Participation:
   a. Bloomberg Finance L.P (referred to as the Bloomberg Terminal)
2) Market Risk Measures:
   d. *Damodaran online: Home page for Aswath Damodaran. (n.d.).* https://pages.stern.nyu.edu/~adamodar/
   e. *Federal Funds Effective Rate (DFF)*. FRED. (2023, October 31). https://fred.stlouisfed.org/series/DFF#0

f. *VIX Volatility Index - Historical Chart*. MacroTrends. (n.d.-b). https://www.macrotrends.net/2603/vix-volatility-index-historical-chart#:~:text=Interactive%20historical%20chart%20showing%20the,October%2016%2C%202023%20is%2017.21

3) Market Valuations:
   a. *S&P 500 PE Ratio – 90-Year Historical Chart*. MacroTrends. (n.d.). https://www.macrotrends.net/2577/sp-500-pe-ratio-price-to-earnings-chart
   b. *S&P 500 Price to Book Value by Quarter*. Multpl. (n.d.-b). https://www.multpl.com/s-p-500-price-to-book/table/by-quarter
   c. *S&P 500 Price to Sales Ratio by Quarter*. Multpl. (n.d.-c). https://www.multpl.com/s-p-500-price-to-sales/table/by-quarter
   d. *Shiller PE Ratio by Month*. Multpl. (n.d.). https://www.multpl.com/shiller-pe/table/by-month

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PRIMARY DRIVERS OF MAJOR U.S. FINANCIAL ASSET RETURNS

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ABSTRACT

This study identifies the key return drivers of five major U.S. financial assets that are included in diversified portfolios. Both the real return and inflation premium have significant explanatory power for Treasury bill returns, which are 6.23% higher in years when these return components are higher. Returns of risky assets are primarily influenced by different risk premiums. The term premium explains 90% of Treasury bond returns and 72% of corporate bond returns. Treasury and corporate bond returns are 14.36% and 11.42% higher, respectively, in years when the term premium is high compared to years when it is low. The equity premium has explanatory power of 82% for large-cap stock returns, and it offers a return premium of 27.68% in years with higher equity premium. The equity and small-cap premiums explain 93% of small-cap stock returns, which are 60.62% higher in years when both these premiums are higher. These findings indicate that the return components which primarily influence major U.S. financial asset returns are the real return and inflation premium for Treasury bills, the term premium for Treasury and corporate bonds, the equity premium for large-cap stocks, and both the equity and small-cap premiums for small-cap stocks.

Keywords: Financial asset returns; Return drivers; Real return; Inflation premium; Term premium; Equity premium; Small-cap premium.

Introduction

Risk-free Treasury bills offer a real return and an inflation premium. In addition to the return components of safer assets, investors require additional premiums for investing in riskier assets: term premium for Treasury bonds, default premium for corporate bonds, equity premium for large-cap stocks, and small-cap premium for small-cap stocks. Several studies have found that future stock market returns and premiums are significantly related to some of their components. This study focuses on explaining rather than predicting the returns of five major U.S. financial assets based on their components. It also investigates the key drivers of the returns of, not just large-cap stocks, but also other major financial assets that comprise diversified portfolios: small-cap stocks, corporate bonds, Treasury bonds, and Treasury bills. The main objective is to identify the components that primarily influence the returns of major financial assets.
The rest of the paper is organized as follows. Section 2 summarizes the existing literature. Section 3 outlines the data and methodology. Section 4 presents empirical findings. Section 5 provides concluding remarks.

Literature review

Several studies have provided evidence of significant relationships between the returns of major financial assets and their components, as well as among the return components. Fama and Schwert (1977) indicated that equity premiums are negatively related to Treasury bill rates. Keim and Stambaugh (1986), Campbell (1987), and Fama and French (1989) showed that the default and term premiums predict equity premiums. Avramov (2002) observed that changes in the term premium indicate variations in stock returns which influence the default probability. Hakkio and Smith (2017) found that the natural real interest rate, which has consistently declined below its historical average of about 2%, is inversely related to the term and risk premiums of bonds.

Kang and Pflueger (2015) showed that international corporate bond spreads are strongly impacted by inflation uncertainty and its dynamic relationship with the business cycle. Brandt and Wang (2003) presented a model where the risk-aversion of investors increases with inflation, raising the required equity premium and real discount rate. Lin (2009) showed that real stock returns are negatively related to expected inflation and inflation uncertainty in the long term, but there is no significant relationship with these variables in the short term. Real stock returns are, however, inversely related to unanticipated inflation over both long and short horizons, indicating that stocks do not hedge against unexpected inflation.

Longer-term bonds generally provide higher interest rates than shorter-term bonds. James et al. (2017) observed that the term premium comprises both inflation expectations and term risk, incorporating expectations of future short-term rates, the extra risk relative to rolling over short-term securities, and greater sensitivity of longer-term bond prices to changes in rates. Palazzo and Nobili (2010) attributed the decrease in bond premiums since the mid-1980s to lower macroeconomic uncertainty and systematic risk as well as the greater diversification benefit of government bonds. Elton et al. (2001) indicated that 85% of the default spread is explained by systematic risk, unrelated to default risk. Dionne et al. (2010) found that default risk increases with the correlation between recovery rates and default proportions. Chan et al. (1998) showed that the default and term premiums have explanatory power for variations in stock returns.

Investors require an equity premium for investing in stocks rather than bonds because stock returns are more volatile than bond returns. Asness (2000) found that relative yields on stocks and bonds are strongly influenced by their long-term volatilities. As Siegel (2005) noted, the equity premium is a critical factor for determining asset allocations and projected wealth of investors as well as companies' cost of capital. There is conflicting evidence about the size of the equity premium. Arnott and Bernstein (2002) reported a historical average equity premium of about 2.4% over 10-year government bonds, but a survey of 226 finance professors by Welch (2000) found a consensus equity premium forecast of about 7%.

Mehra and Prescott (1985) posed an equity premium puzzle, pointing out that the historical average equity premium of 6.2% over the short-term risk-free rate is too large compared to the maximum equity premium of 0.35% implied by reasonable risk-aversion levels. Jagannathan et al. (2000) observed that the unusually large equity premium has been attributed to market imperfections such as the inability of investors to fully insure against major non-market risks like labor income shocks, transaction costs, and incomplete knowledge about investment opportunities. Market imperfections reduce investors' willingness to bear risks, increasing their required return for investing in stocks. Merton (1987) demonstrated that the equity premium can be much higher in an economy with incomplete diversification compared to a perfect capital market.

Canova and Nicolo (2003) found that differences in the distributions of risk-free rates and equity premiums across Group of Seven countries and time periods are related to differences in their inflation rates, and variations in equity premiums are equally due to variations in risk-free rates and equity returns. Donaldson et al. (2010) noted that the low dividend yields, high excess returns, and high returns volatility observed simultaneously over the last five decades suggest that the equity premium varies with trends and breaks. Chen et al. (2013) indicated that stock returns have a significant component of cash flow news, which is greater for longer horizons, and cash flow news comprises a larger share of stock returns than discount rate news for investment periods longer than two years. Albuquerque et al. (2016) showed that valuation risk, which is the proportion of an asset's excess return that is due to volatility of the time preference shock, has a far greater impact on asset returns than conventional risk. They found that valuation risk drives the slope of the yield curve, and it has the greatest impact on the term premium as well as the equity premium.

Heaton (2007) suggested several possible explanations for the small-cap premium. Smaller companies are more likely to face greater event risks; have weaker competitive positions, fewer facilities, and less product diversification; and be more vulnerable to regulatory risk or labor disruptions. He observed that the small-

cap premium may also reflect a liquidity premium since stocks of smaller companies generally have higher percentage bid-ask spreads compared to larger companies. Bernanke and Gertler (1989) indicated that recessions may produce flights to quality, as investors switch from high-risk small firms to better collateralized, safer large firms. Perez-Quiros and Timmermann (2000) showed that small firms exhibit the greatest asymmetry of returns in recessions and expansions, with large variations in their expected returns, which increase during recessions owing to investors requiring a higher premium for their greater risk. Vassalou and Xing (2004) found that the firm-size effect is related to default risk; small firms earn higher returns than big firms only if they also have high default risk. Fama and French (2007) demonstrated that the small-cap premium is almost entirely due to the highly positive returns of small-cap stocks that migrate to large-cap portfolios, and argued that the size premium reflects rational risks.

Data and methodology

This study uses 95 years of annual data on inflation and returns of five major U.S. financial assets for 1926-2020. The following data are available from Ibbotson (2021): inflation rate of the Consumer Price Index—all urban consumers, not seasonally adjusted; and nominal total returns of 30-day Treasury bills, 20-year Treasury bonds, high-grade 20-year corporate bonds, Standard & Poor's Composite Index of large-company stocks, and portfolios of small-company stocks.

The inflation rate is treated as the inflation premium, and the other components of the financial asset returns are calculated as follows:
Real return = Treasury bill return – Inflation rate
Term premium = Treasury bond return – Treasury bill return
Default premium = Corporate bond return – Treasury bond return
Equity premium = Large-cap stock return – Corporate bond return
Small-cap premium = Small-cap stock return - Large-cap stock return

The premiums are computed as differences between the returns of assets with the next level of risk compared to the previous level of risk. These calculations differ from commonly used measures of some of these components, such as the default premium and equity premium. The calculation method used in this study decomposes the return of each financial asset into its individual components, enabling delineation of the incremental effect of each component on the asset returns.

The analyses are based on the descriptive statistics of the returns of the financial assets and their components; correlations of the asset returns and their components; univariate and multivariate regressions of the asset returns against their components; and t-tests for significant differences between the asset returns in years with above- and below-median values of their components.

The financial asset returns are regressed against their components listed below:
Treasury bills: real return, inflation premium.
Treasury bonds: real return, inflation premium, term premium.
Corporate bonds: real return, inflation premium, term premium, default premium.
Large-Cap stocks: real return, inflation premium, term premium, default premium, equity premium.
Small-Cap stocks: real return, inflation premium, term premium, default premium, equity premium, small-cap premium.

The economic significance of the regression results is evaluated by determining whether there are significant differences between the mean returns of the financial assets in years with high and low values of each component of their returns. For this purpose, the 95-year sample period is split into two equal 47-year periods with above- and below-median values of each component.

Empirical findings

Table 1 presents the descriptive statistics of the components and returns of the financial assets. The means are higher than the medians for the inflation, term, equity, and small-cap premiums, whereas the medians are higher than the means for the real return and default premium. Based on the means, the largest components are the equity and small-cap premiums, followed by the inflation and term premiums, and the smallest components are the default premium and real return. The range and standard deviation are highest for the equity and small-cap premiums, moderately high for the term and default premiums, and lowest for the real return and inflation premium. The risk-return tradeoffs indicated by the coefficient of variation (CV) show that the components with the lowest means (default premium and real return) have the highest CV, whereas those with the highest means (equity and small-cap premiums), as well as the term premium, have moderate CV, and the inflation premium has the lowest CV. Since return components that are more variable may be expected to have greater explanatory power for variations in returns, the CVs suggest that explanatory power should be high for the default premium and real return, moderate for small-cap, term, and equity premiums, and low for the inflation premium.

The financial asset returns have fairly consistent risk-return characteristics. The means are higher than the medians for the relatively safer assets (Treasury bills and Treasury and corporate bonds), but the medians are higher than the means for the riskier assets (small-cap and large-cap stocks). The mean, median, range, standard deviation, and CV are highest for small-cap stocks, followed by large-cap stocks, and lowest for Treasury bills. The mean and median are second-lowest for Treasury bonds and third-lowest for corporate bonds, whereas the range, standard deviation, and CV are second-lowest for corporate bonds and third-lowest for Treasury bonds.

Table 2 depicts the mean proportion of each component in the returns of the financial assets. The inflation premium accounts for 88% of Treasury bill returns
while the real return is only 12%. Treasury bond returns largely consist of the inflation premium (48%) and term premium (45%); the real return constitutes 7%. Corporate bond returns also mainly comprise the inflation premium (45%) and term premium (42%), with smaller contributions of 6% each from the default premium and real return. The largest component of large-cap stock returns is the equity premium (47%), more moderate components being the inflation premium (24%) and term premium (23%); the real return and default premium provide only 3% each. Small-cap stock returns primarily consist of the equity premium (35%) and small-cap premium (25%), followed by the inflation premium (18%) and term premium (17%), with with small contributions of 2.5% each from the default premium and real return. The financial asset returns should be strongly impacted by variations in their largest components, indicating that the key drivers of returns are expected to be the inflation premium for Treasury bills, the inflation and term premiums for Treasury and corporate bonds, the equity premium for large-cap stocks, and the equity and small-cap premiums for small-cap stocks.

Table 1
Descriptive statistics of annual components and returns of U.S. financial assets: 1926-2020

Return components						
	Real return	Inflation premium	Term premium	Default premium	Equity premium	Small-cap premium
Maximum	11.24%	18.13%	29.82%	17.92%	47.24%	88.88%
Mean	0.40%	2.93%	2.75%	0.41%	5.66%	4.00%
Median	0.49%	2.67%	2.25%	1.06%	5.52%	1.62%
Minimum	-17.78%	-10.27%	-15.18%	-17.09%	-45.78%	-42.94%
Range	29.02%	28.40%	45.00%	35.01%	93.02%	131.82%
Standard deviation	3.88%	3.98%	9.78%	4.50%	20.00%	19.87%

Coefficient of variation	9.63	1.36	3.56	11.00	3.53	4.97

Financial asset returns

	Treasury bills	Treasury Bonds	Corporate bonds	Large-cap stocks	Small-cap stocks
Maximum	14.71%	40.36%	42.56%	53.99%	142.87%
Mean	3.34%	6.08%	6.49%	12.16%	16.16%
Median	2.90%	3.70%	4.82%	14.30%	17.62%
Minimum	-0.02%	-14.90%	-8.09%	-43.34%	-58.01%
Range	14.73%	55.26%	50.65%	97.33%	200.88%
Standard deviation	3.08%	9.81%	8.46%	19.67%	31.33%
Coefficient of variation	0.92	1.61	1.30	1.62	1.94

Table 3 portrays the correlations among the components and returns of the financial assets. The inflation premium has a strong negative correlation with the real return and a moderate negative correlation with the term premium. The term premium is also moderately negatively correlated with the default and equity premiums. The equity premium has moderate positive correlations with the default and small-cap premiums. Among the financial asset returns, there are strong positive correlations between Treasury and corporate bonds, and between large-cap and small-cap stocks. These correlations among the asset returns suggest that similar components may drive the returns of Treasury and corporate bonds, and the returns of large-cap and small-cap stocks. The correlations among the components show that the real return and term premium are lower when the inflation premium is higher, and the default and equity premiums are also inversely related to the term premium. The equity premium increases with the default and small-cap premiums. Since these correlated components may explain similar variations in the financial asset returns, combining them may not enhance the explanatory power of multivariate regression models.

Table 2

Mean Proportions of components of annual U.S. financial asset returns: 1926-2020

Mean proportions

	Treasury bills	Treasury bonds	Corporate bonds	Large-cap stocks	Small-cap stocks
Real return	12.08%	6.63%	6.21%	3.32%	2.50%
Inflation premium	87.92%	48.24%	45.20%	24.14%	18.16%
Term premium		45.13%	42.29%	22.58%	16.99%
Default premium			6.30%	3.37%	2.53%
Equity premium				46.60%	35.06%
Small-cap premium					24.76%

Table 4 provides the results of univariate regressions of the financial asset returns against their components. Treasury bill returns are significantly positively related to both the inflation premium and real return, which have adjusted R-squares of 17% and 12%, respectively. Treasury bond returns have significant positive relationships with the term premium, which explains 90% of variations in its returns, and real return, which has only 7% explanatory power. Corporate bond returns are also significantly positively related to the term premium and real return, which have explanatory power of 72% and 6%, respectively. Large-cap stock returns have significant positive relationships with the equity premium, which explains 82% of its return variations, and the default premium, which has 8% explanatory power. Small-cap stock returns are significantly positively related to the small-cap, equity, and default premiums, which have explanatory power of 63%, 56%, and 9%, respectively.

Table 3
Correlations between annual components and returns of U.S. financial assets: 1926-2020. ** and * indicate significance at 1% and 5% levels, respectively.

Return components					
	Real return	Inflation premium	Term premium	Default premium	Equity premium
Inflation premium	-0.69**				
Term premium	0.16	-0.27**			
Default Premium	-0.11	0.02	-0.48**		
Equity premium	-0.12	0.06	-0.34**	0.32**	
Small-cap premium	-0.17	0.09	-0.14	0.20*	0.29**
Returns					
	Treasury bills	Treasury bonds	Corporate Bonds	Large-cap stocks	
Treasury bonds	0.17				
Corporate bonds	0.14	0.89**			
Large-cap stocks	-0.02	0.01	0.17		
Small-cap stocks	-0.08	-0.10	0.05	0.79**	

These regression results show that the explanatory powers of the return components depend more on their variability, reported in Table 1, than on their proportions in the financial asset returns, listed in Table 2. Although the inflation premium comprises 88% of Treasury bill returns, its adjusted R-square of 17% is only slightly higher than the 12% adjusted R-square of real return, which has a CV that is more than seven times that of the inflation premium. The term and inflation premiums form similar proportions of Treasury and corporate bond returns, but the term premium explains 90% and 72% of their returns, respectively, because its CV is 2.6 times that of the inflation premium. Even the real return, which accounts for only 7% of Treasury bond returns and 6% of corporate bond returns, has significant explanatory power of 7% and 6%, respectively, for their returns because its CV is 2.7 times that of the term premium. The equity premium, which constitutes 47% of large-cap stock returns, explains 82% of its return variations owing to moderate variability, and the default premium, which accounts for only 3% of large-cap stock returns, produces significant explanatory power of 8% because its CV is more than three times that of the equity premium. The small-cap premium, which forms 25% of small-cap stock returns, explains 63% of its return variations, which is higher than the 56% explanatory power of the equity premium, although the equity premium constitutes a larger 35% of small-cap stock returns, because the small-cap premium's CV is 1.4 times that of the equity premium. The default premium accounts for less than 3% of small-cap stock returns, but it has significant explanatory power of 9%, because its CV is more than twice that of the small-cap premium and three times that of the equity premium.

Table 4
Univariate regressions of annual U.S. financial asset returns against their components: 1926-2020. ** and * indicate significance at 1% and 5% levels, respectively.

Return components	Intercept	T-statistic	Coefficient	T-statistic	Adjusted R-square
Treasury bills					
Real return	0.03**	10.81	0.29**	3.79	12%
Inflation premium	0.02**	6.63	0.32**	4.44	17%
Treasury bonds					
Real return	0.06**	5.93	0.70**	2.78	7%
Inflation premium	0.07**	5.69	-0.34	-1.36	1%
Term premium	0.03**	10.59	0.95**	29.47	90%
Corporate bonds					
Real return	0.06**	7.40	0.58**	2.64	6%
Inflation premium	0.07**	6.93	-0.32	-1.48	1%
Term premium	0.04**	9.34	0.73**	15.50	72%
Default premium	0.07**	7.47	-0.11	-0.56	-1%
Large-cap stocks					
Real return	0.12**	5.97	-0.06	-0.11	-1%
Inflation premium	0.12**	4.86	-0.04	-0.07	-1%
Term premium	0.12**	5.71	0.04	0.21	-1%
Default premium	0.12**	5.98	1.30**	3.00	8%
Equity premium	0.07**	8.08	0.89**	21.06	82%
Small-cap stocks					
Real return	0.17**	5.12	-0.93	-1.12	0%
Inflation premium	0.15**	3.72	0.42	0.51	-1%
Term premium	0.17**	5.02	-0.24	-0.71	-1%
Default premium	0.15**	4.95	2.17**	3.17	9%
Equity premium	0.09**	4.29	1.18**	11.08	56%
Small-cap premium	0.11**	5.57	1.25**	12.63	63%

Table 5 presents the results of multivariate regressions of the financial asset returns against their components with significant coefficients in the univariate regressions in Table 4. No multivariate regression is conducted for Treasury bill returns since it has only two components, which are strongly negatively correlated, indicating severe multicollinearity, and the two components would have combined explanatory power of 100%. Both the term premium and real return are significantly related to Treasury bond returns in the multivariate regression and the adjusted R-square increases marginally to 92% from 90% in the univariate regression with the term premium. The term premium and real return are also significantly related to corporate bond returns; this multivariate model has slightly higher explanatory power of 73%, compared to 72% in the univariate regression with the term premium. The multivariate regression of large-cap returns shows a signficant relationship with the equity premium, but not with the default premium, and the 82% adjusted R-square of this model is similar to that of the univariate regression with the equity premium. In the regression of small-cap stock returns also, the default premium does not have a significant coefficient, while the equity and small-cap premiums are both significantly related. Excluding the default premium, and running the multivariate regression with only the equity and small-cap premiums, yields similar results. The adjusted R-squares of 93% for the multivariate models of small-cap returns are much higher than the explanatory powers of 63% and 56% in the univariate regressions with the small-cap and equity premiums, respectively.

Table 5
Multivariate regressions of annual U.S. financial asset returns against their significant components: 1926-2020. ** and * indicate significance at 1% and 5% levels, respectively.

	Coefficient	T-statistic	Adjusted R-square
Treasury bonds			
Intercept	0.03**	11.23	
Real return	0.32**	4.17	
Term premium	0.93**	30.86	92%
Corporate bonds			
Intercept	0.04**	9.43	
Real return	0.28*	2.39	
Term premium	0.72**	15.29	73%
Large-cap stocks			
Intercept	0.07**	8.04	
Default premium	0.04	0.22	
Equity premium	0.89**	19.80	82%
Small-cap stocks			
Intercept	0.07**	7.96	
Default premium	0.05	0.24	
Equity premium	0.89**	19.15	
Small-cap premium	0.99**	21.81	93%

The univariate regression results showed that the real return and inflation premium are both significant drivers of Treasury bill returns. Comparing the multivariate and univariate regression results of the other financial asset returns indicates that the primary drivers are the term premium for Treasury and corporate bonds, the equity premium for large-cap stocks, and the equity and small-cap premiums for small-cap stocks. All of these key drivers are significantly positively related to the financial asset returns in both the univariate and multivariate regressions.

Table 6
Differences between annual U.S. financial asset returns in years with high and low values of their components: 1926-2020. ** and * indicate significance at 1% and 5% levels, respectively.

Return components	Mean return in years with high values of components	Mean return in years with low values of components	Differences between mean returns in years with high and low values of components	T-statistic
Treasury bills				
Real return	4.52%	2.12%	2.40%**	3.95
Inflation premium	4.74%	1.92%	2.82%**	4.91
Treasury bonds				
Real return	8.11%	4.19%	3.92%*	2.44
Inflation premium	5.71%	6.75%	-1.04%	-0.53
Term premium	13.28%	-1.08%	14.36%**	13.79
Corporate bonds				
Real return	7.80%	5.27%	2.53%	1.79
Inflation premium	6.24%	7.01%	-0.77%	-0.44
Term premium	12.19%	0.77%	11.42%**	11.10
Default premium	5.74%	7.21%	-1.47%	-0.86
Large-cap stocks				
Real return	12.05%	12.29%	-0.24%	-0.06

Inflation premium	10.35%	14.19%	-3.84%	-0.86
Term premium	14.93%	10.18%	4.75%	1.23
Default premium	14.19%	10.57%	3.64%	0.84
Equity premium	26.07%	-1.61%	27.68%**	15.79
Small-cap stocks				
Real return	10.97%	20.92%	-9.95%	-1.64
Inflation premium	14.69%	17.91%	-3.22%	-0.49
Term premium	16.63%	16.85%	-0.22%	-0.03
Default premium	21.41%	11.50%	9.91%	1.56
Equity premium	34.97%	-2.11%	37.08%**	9.11
Small-cap premium	48.28%	-12.34%	60.62%**	9.33

Table 6 shows significant differences of 2.82% and 2.40% between the mean Treasury bill returns in years with high and low inflation premiums and real returns, respectively. The difference of 14.36% between the Treasury bond returns in years with high and low term premiums is significant at 1% level, while the return difference of 3.92% in years with high and low real returns is significant at 5% level. Corporate bond returns have a significant difference of 11.42% between years with high and low term premiums. There is a significant difference of 27.68% between large-cap stock returns in years with high and low equity premiums. Small-cap stock returns have significant differences of 37.08% between years with high and low equity premiums, and 34.59% between years with high and low small-cap premiums.

For the three financial assets with significant differences in returns in years with high and low values of more than component, Table 7 examines the impact of combining both the significant components. There is a significant difference of 6.23% between Treasury bill returns in 19 years with above-median real return and inflation premium compared to 20 years with below-median values of both these components. Treasury bond returns have a significant difference of 17.79% between 24 years of high and low values of real return and term premium. Small-cap stocks have an extremely large significant difference of 60.62% between 28 years with high equity and small-cap premiums compared to 27 years with low values of these premiums.

Table 7

Differences between annual U.S. financial asset returns in years with high and low values of their significant components: 1926-2020. ** and * indicate significance at 1% and 5% levels, respectively.

Return components	Mean return in years with high values of components	Mean return in years with low values of components	Differences between mean returns in years with high and low values of components	T-statistic
Treasury bonds				
Real return & Term premium (Number of Years)	15.96% (24)	-1.83% (24)	17.79%**	8.46
Corporate bonds				
Real return & Term premium (Number of years)	13.65% (24)	0.11% (24)	13.54%**	6.39
	Large-cap stocks			
Default premium & Equity premium (Number of years)	25.87% (28)	-0.15% (28)	26.02%**	7.29
	Small-cap stocks			
Equity premium & Small-cap premium (Number of years)	48.28% (28)	-12.34% (27)	60.62%**	9.33

The difference of 6.23% between Treasury bill returns in years when both real return and the inflation premium are high, compared to the years in which they are low, is more than double the return differences between years with high and low real return or inflation premium alone, in Table 6. The 17.79% higher Treasury bond return in years with high real return and term premium, relative to years with low values of these components, is 24% higher than the return difference of 14.36% based on the term premium alone. The difference of 60.62% between small-cap stock returns in years with high and low equity and small-cap premiums is 63% higher than the return difference of 37.08% in years with high and low equity premiums.

Based on the regression results in Tables 4 and 5, and the tests of return differences in Tables 6 and 7, the statistically and economically significant primary drivers of financial asset returns are the inflation premium and real return for Treasury bills, the term premium and real return for Treasury bonds, the term premium for corporate bonds, the equity premium for large-cap stocks, and the equity and small-cap premiums for small-cap stocks.

CONCLUSIONS

Since investors generally hold diversified portfolios of stocks and bonds, empirical evidence of the key drivers of the returns of these financial assets can support informed decisions by investors and should attract interest from academics as well as practitioners. This paper investigates which return components drive the returns of five major U.S. financial assets. There are strong positive correlations between Treasury and corporate bond returns, and between large-cap and small-cap stock returns, indicating that these pairs of assets may have common drivers. Regression results indicate that the inflation premium explains 17%, and the real return explains 12%, of variations in Treasury bill returns. The term premium has explanatory powers of 90% for Treasury bond returns and 72% for corporate bond returns. The equity premium explains 82% of large-cap stock returns, while the equity and small-cap premiums have combined explanatory power of 93% for small-cap stock returns. T-tests show significant differences of 6.23% between Treasury bill returns in years with high and low real return and inflation premium, 14.36% and 11.42% between Treasury and corporate bond returns, respectively, in years with high and low term premium, 27.68% between large-cap stock returns in years with high and low equity premium, and 60.62% between small-cap stock returns in years with high and low equity and small-cap premiums.

These findings indicate that both the inflation premium and real return influence Treasury bill returns, and the key drivers of the risky assets are the term premium and real return for Treasury bonds, the term premium for corporate bonds, the equity premium for large-cap stocks, and both the equity and small-cap premiums for small-cap stocks. Analysis of the results indicates that the impact of return components on financial asset returns depends more on their variability than on their proportions in the asset returns. The overall conclusions for risky assets are that investors can expect high returns from Treasury and corporate bonds when the term premium is high, from large-cap stocks in years with high equity premium, and from small-cap stocks when the equity and small-cap premiums are high.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE (AI) IN ACCOUNTING AND AUDITING

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Abstract

The objective of this paper is to investigate how AI is revolutionizing accounting. In doing so, we will analyze the following issues: (1) The emergence of AI in Accounting (2) The benefits of AI in Accounting (3) The impact of AI on the accounting curriculum, and (4) The potential of AI to replace accountants? The methodology to be utilized is Qualitative Conceptual Content Analysis using secondary data to review published articles written about the issue. Review of literature provides the initial answers to the questions posed. AI in accounting refers to the use of artificial intelligence technologies, such as machine learning algorithms, and natural language processing, to automate and enhance various accounting processes. This includes tasks such as financial reporting, audit and compliance, fraud detection, and data analysis. AI in accounting can help improve accuracy and efficiency, reduce costs, and provide valuable insights and predictions for decision-making. Advanced technologies such as AI can assist and improve the work of accountants, but it cannot entirely replace them because of AI inability to perform essential human skills such as judgment, communication, and critical thinking.

Keywords: accounting curriculum, accounting careers, data analysis, accuracy, effectiveness, efficiency

Introduction

The AICPA and the National Association of State Boards of Accountancy (NASBA) launched the CPA Evolution Model Curriculum (CPAEMC), designed to help educators prepare graduates for the changing demands of the CPA profession. The CPAEMC outlines suggested courses colleges and universities can offer to align their accounting programs with CPA Evolution. A new CPA licensure model is expected to debut in 2024. Under the CPA Evolution model, CPA Exam candidates will all take three Core sections, which will test fundamental knowledge in the areas of accounting, audit, and tax/regulation, with a recognition of the ways technology has impacted these three areas. The candidates will then take an Exam section in their choice of one of three Disciplines: tax compliance and planning (TCP), business analysis and reporting (BAR), or information systems and controls (ISC). The AICPA anticipates rolling out a new version of the CPA Exam based on this model in 2024. The model curriculum recommends that candidates will need to be familiar with Robotic Process automation (RPA) and Artificial Intelligence (AI) topics (Vien,2021).

Roessner (2023) reported that the 2024 CPA Exam Blueprints was released. The three sections that comprise the Core of the Exam — Auditing and Attestation (AUD), Financial Accounting and Reporting (FAR), and Taxation and Regulation (REG) — will be similar to the current version of the Exam, although some content has moved from FAR and REG to their related Discipline

sections. Each candidate must also pass a Discipline section for licensure. Candidates can choose from three options: Business Analysis and Reporting (BAR), Information Systems and Controls (ISC), or Tax Compliance and Planning (TCP). The Discipline sections enable candidates to demonstrate knowledge and skills in an area that aligns with their current interests. The CPA Exam Blueprints will be available for review starting in January 2023. Testing under the updated curriculum begins in 2024, so everyone has a year to acclimate and prepare (Roessner, 2023).

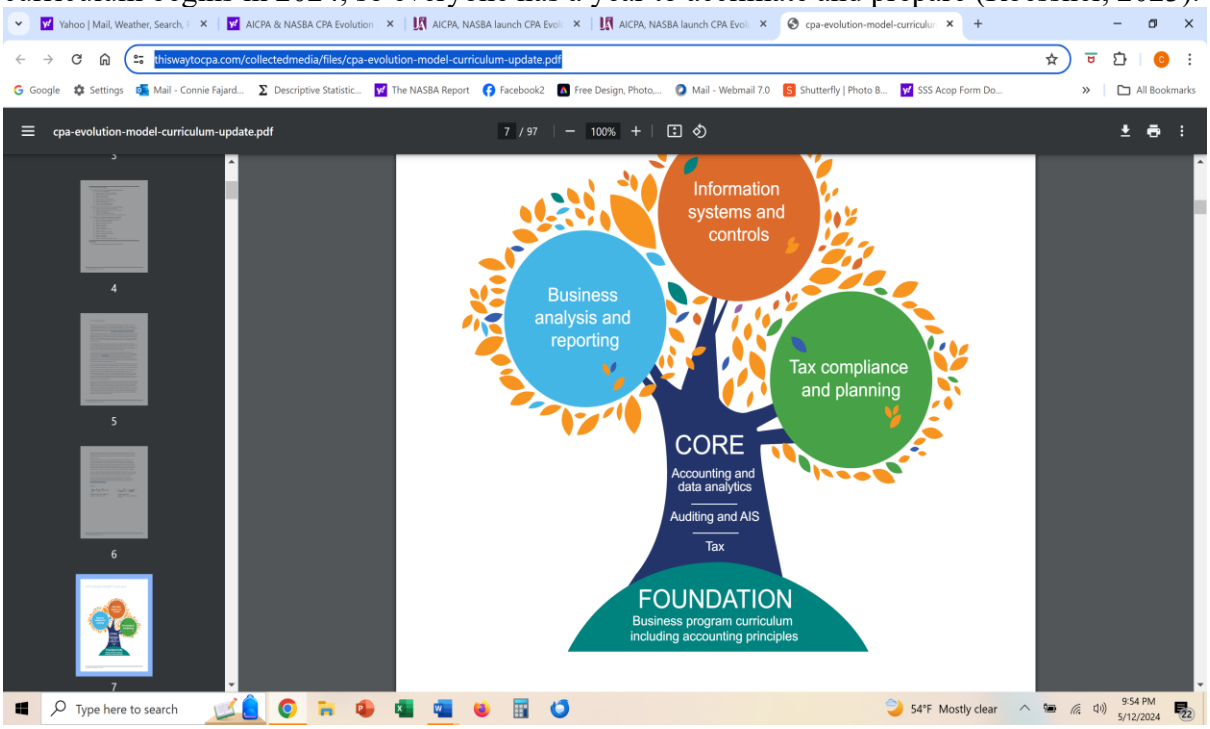

Figure 1 – The AICPA and the National Association of State Boards of Accountancy (NASBA) launched the CPA Evolution Model Curriculum (CPAEMC). (Roessner, 2023).

Literature Review

Ng (2023) research paper described a seven-step process for designing and teaching an advanced data analytics course that incorporates RPA and AI. The seven steps include: (1) Create learning outcomes, (2) Determine Assessments, (3) Select the Software and Plan the Learning Activities, (4) Obtain University Approval to Execute Contracts and Install Software, (5) Develop Schedule for the Semester, (6) Faculty Training, and (7) Teach and Assess the course. This study discusses in detail the design process used in a graduate-level (can be used for undergraduate courses) advanced data analytics course that incorporates RPA and AI at a public university in the northeastern region of the United States. By integrating these emerging technologies into the curriculum, accounting instructors can help students acquire the technical skills and analytics mindset necessary for problem solving, better decision making, and increased productivity. The paper concludes with an evaluation of the effectiveness of course design and delivery using descriptive statistical analysis of precourse/postcourse reflections and surveys of student feedback. The results suggest strong evidence of student learning related to the course learning objectives (Ng, 2023).

In another study, Bakarich and O'Brien (2021) interviewed accounting professionals regarding their views on AI technology adoption and the risks associated with the accounting profession.

They found that professionals have an overall positive view of AI and believe that it will enhance job performance by reducing repetitive tasks and the risk of human error. They suggested integrating data analytics and AI throughout the curriculum (introductory, intermediate, and senior levels) in response to the growing importance of these technologies in the accounting profession (Bakarich and O'Brien, 2021).

ChatGPT, an AI tool, became extremely popular recently, due to its conversational voice and abilities. Kenny (2023) in his paper explores the impact of AI on accounting and accountants focusing on financial reporting. The research discusses utilizing AI technologies, specifically ChatGPT 4, as tools available for accountants, and how these are modifying the way financial data is processed, analyzed, and reported. The objectives of the author are to examine the potential advantages, benefits, limits, and risks associated with AI implementation in accounting, including increased accuracy and efficiency, and concerns on data privacy and security. Quantitative method of research was used. The author posited that accountants need to develop new skills and competencies that includes a deep understanding of AI algorithms and their limitations, and the ability to interpret and communicate the results of AI-driven analysis to non-technical stakeholders. The paper also considers the challenges of detecting and preventing dishonesty and suggests strategies that accountants can implement to ensure integrity to use of these tools. These strategies refer to policies and procedures, providing training and support. The paper concludes that while the use of AI for accounting presents benefits and opportunities, there are also some challenges to face. Accountants can effectively address these concerns by taking a proactive and ethical approach to the responsible use of these tools. Future research could be represented by creating focus groups and interviews with different stakeholders to observe the impact of ChatGPT in a business environment, by discussing both financial and non-financial reporting (Kenny, 2023).

Statement of the Problem

AI is revolutionizing accounting. Emerging technologies have disrupted the entire accounting ecosystem in recent years. The education realm has been one of the areas hardest hit. Declining enrollments and decreased numbers of CPA candidates have presented formidable challenges for institutions of higher learning. This paper will try to answer the following questions: (1) What is AI in accounting? (2) What are the benefits of AI? (3) What is the impact of AI in accounting, auditing, and the accounting curriculum, (4) Will AI replace accountants?

Methodology

The methodology to be utilized is Qualitative Conceptual Content Analysis using secondary data to review published articles written about the issue nationally and internationally.

Artificial intelligence (AI) is defined as a computer program that can imitate or simulate human behavior, has various applications in financial accounting, management accounting, audits, taxes, and advisory services. AI in accounting refers to the use of artificial intelligence technologies, such as machine learning algorithms, and natural language processing, to automate and enhance various accounting processes. This includes tasks such as financial reporting, audit and compliance, fraud detection, and data analysis. The next generation of accountants must be well versed in data analytics, Robotic Process Automation (RPA), Artificial Intelligence (AI), and other emerging technologies to help clients and organizations make better decisions and gain a competitive advantage. Accountants have always played a significant role in analyzing and reporting the types

of business transaction information necessary for decision making. However, routine tasks performed by accountants, from posting journal entries to identifying high-risk transactions, can now be handled by machines (Ng, 2023).

Developments in technology have not only evolved but also increased the use of automation, artificial intelligence, robot process automation (RPA), and bots (short for Robots). The application of this technology can vary due to the slight differences. Incorporation of this digital realm within accounting has raised questions on the implementation and management for this profession and industry. Differences between bots, automation, artificial intelligence, and RPA factor into its use. Reasons for this technology in accounting vary. Procedures, policies, and management of bot controls within accounting require a comprehensive strategy. Automation technology in accounting will affect the outlook for accounting and finance professionals.

Understanding the differences in the latest innovations for bots, chatbots, automation, artificial intelligence, and RPA is crucial for its application within accounting. Automation is the all-encompassing term for the technology that falls under its umbrella, which surpasses human capabilities for more consistent and quicker performance of repetitive tasks. There is a distinction between bots and chatbots, with the latter being the more advanced requiring human programmers to enter its Natural Language Understanding (NLU) engine. A bot is a much simpler automation technology, performing the most basic tasks widely used within customer service. Artificial intelligence (AI) is the highest level of automation requiring the use of Natural Language Processing (NLP) and machine learning to integrate human intelligence. RPA is the physical entity of automation.

A bot, short for robot, and also called an internet bot, is a computer program that operates as an agent for a user or other program or to simulate a human activity. Bots are automated, which means they can run according to instructions without a human user needing to manually start them up every time. It can do repetitive tasks and do them much faster than human use. Bots usually operate over a network; more than half of Internet traffic is bots scanning content, interacting with webpages, chatting with users, or looking for attack targets (CloudFlare, 2004).

How do the Big 4 use Artificial Intelligence?

The “Big 4” accounting firms—Deloitte, PwC, Ernst & Young (EY), and KPMG—have led the way with AI adoption. They have invested heavily in AI-powered tools and solutions to provide clients with more advanced and insightful services. Here is a glimpse of how they use AI (Thompson Reuters, 2023):

- Predictive analytics: The Big 4 firms utilize AI-driven predictive analytics to help clients make data-driven decisions. This includes forecasting financial trends, identifying potential risks, and optimizing strategies for growth.
- Auditing: AI-powered audit tools analyze large volumes of financial data quickly and accurately. The Big 4 uses these tools to identify anomalies and potential issues, improving the audit process’s efficiency and accuracy.
- Tax compliance: AI assists in automating complex tax compliance. It helps the Big 4 firms keep up with ever-changing tax codes and regulations while minimizing errors.
- Client insights: AI-driven platforms provide deeper insights into client needs and behaviors. This allows the firms to tailor their services more effectively and build stronger client relationships.

Under contemporary cases (Reuter, 2023): Case 1 – Use of NLP Use of Data Automation and Use of for risk analysis (KPMG), , Case 2 – Use of AI for Transfer Pricing Services (KPMG), Case 3 -Autonomous Audit Drones for Inventory management (EY), Case 4 - Audit Use of AT to Augment Auditors Judgment ((Delloite), Case 5 – Use of Data Automation and use of RPA Tax for Function (Grant Thorton). PwC's AI consulting offers expertise and experience with natural language processing, machine learning, deep learning, model operations, automated ML, digital twins, generative AI, embodied AI, responsible AI, and more.

Impact of AI in Accounting

DUMITRASCU (2024) study explores the impact of AI on accounting with a focus on financial reporting. It discusses AI technologies, specifically ChatGPT 4, as a tool available for accountants to process, analyze, and report financial information. The paper aims to determine the potential advantages, benefits, limits, and risks associated with AI implementation in accounting, including increased accuracy and efficiency, as well as concerns around data privacy and security. The author used quantitative analysis of the data. The study identifies the challenges of detecting and preventing dishonesty. It recommends strategies that accountants can implement to ensure integrity in using these tools such as policies, procedures, and providing training and support. In conclusion, the author stated that accountants can effectively address concerns on the use of AI by taking a proactive and ethical approach in the responsible use of these tools (DUMITRASCU, 2024).

Kenny (2023) defines CHATGPT as the artificial intelligence-powered chatbot which has fast-evolving ability to interpret questions and comments and commands to produce coherent, even human-seeming responses. ChatGPT has shown itself capable of composing everything from website copy to college essay and restaurant reviews. It has been used to produce bizarre philosophical conversations and even contest-winning art. In Finance and accounting, early adopters already are using language-based AI interfaces to create formulas and programming scripts, while marketing material and draft responses to clients. When a user's prompt is received, GPT-based system generates an answer based on the pattern it detects in the materials it has already been trained on. GPT stands for Generative Pre-trained Transformers. The system is often described as a neutral network machine learning model that incorporates billions of datapoints. When it generates content, the system chooses sequences of words, based on patterns in the data it has learned. Its knowledge has been reinforced by training, during which reviewers flag its incorrect answers. ChatGPT was the combination of years of recent advances that have put powerful AI tools into the hands of the general public. Some of the most popular tools are derived from the work of OpenAI, the organization that operates ChatGPT and the GPT model that powers it (Kenny, 2023). However, ChatGPT and similar platforms have some critical weaknesses, there are errors. That raises concerns for accountants planning to use AI to generate website or client communications material. Anything CHATGPT produces must be vetted for accuracy. CHATGPT can also post security risks. OpenAI is allowed to use data the users input to the free version of ChatGPT to improve products, OpenAI states that it removes personal identification from such data. There is a risk that if users input sensitive data, it could become part of the database ChatGPT is trained on which can potentially appear in the other users' chats (Kenny, 2023).

The Best AI tools for Accounting

Developments in technology have not only evolved but also increased the use of automation, artificial intelligence, Robot Process Automation (RPA), and bots (short for Robots). Incorporation of this digital realm within accounting has raised questions on the implementation and management for this profession and industry. Differences between bots, automation, artificial intelligence, and RPA factor into its use. Reasons for this technology in accounting vary. Procedures, policies, and management of bot controls within accounting require a comprehensive strategy. Automation technology in accounting will affect the outlook for accounting and finance professionals.

Understanding the differences in the latest innovations for bots, chatbots, automation, artificial intelligence, and RPA is crucial for its application within accounting. Automation is the all-encompassing term for the technology that falls under its umbrella, which surpasses human capabilities for more consistent and quicker performance of repetitive tasks. There is a distinction between bots and chatbots, with the latter being the more advanced requiring human programmers to enter its Natural Language Understanding (NLU) engine. A bot is a much simpler automation technology, performing the most basic tasks widely used within customer service. Artificial intelligence (AI) is the highest level of automation requiring the use of Natural Language Processing (NLP) and machine learning to integrate human intelligence. RPA is the physical entity of automation.

The use of automation has progressed since its development. In general, sources from across the web provide that the reasons to utilize this technology are many, including cost savings, productivity, efficiency, improvements in reliability, elimination of repetitive tasks, accuracy, time savings, minimization of error, and better standardization. In accounting, the type of automation technology most widely used is RPA. According to Harrast (2020), accounting professionals can be assisted using automation with data collection and entry, as well as other time-consuming recurring tasks. Within the scope of accounting, another reason to use automation is for the subsequent processes of auditing (Raschke et al., 2018).

The Benefits of AI Tools for Accountants

Nichols, (2004) provided some key benefits of integrating AI accounting tools: (1) Increased Accuracy and Efficiency, (2) AI improves accuracy and efficiency in financial reporting. By automating data processing, human errors in manual data handling can be minimized,, (3) allows to fast-track compliance work flows and produce precise management accounts that foster trust with clients (3) Real-Time Data Analysis and Insight, (4) With all data connected in the cloud, data analysis can be used to benchmark clients against the firm's entire portfolio and identify trends, threats, and opportunities, allowing for more informed decision-making and creating additional value for clients, (5) Automation of Repetitive Tasks, (6) Use AI to train your staff what to look out for and how to remedy common issues (Nichols, 2024). The application of an AI tool for accounting extends far beyond chatbot interfaces like ChatGPT. It can also delve into the realm of machine learning for data analysis and helping the firm solve a myriad of challenges, such as: (1) Reducing workload), (2) Increasing capacity without increasing headcount, (3) Detecting fraud, and (4) Providing monetizable insights. Such capabilities enable accounting firms to adopt a more proactive and strategic approach to their operations, enhancing efficiency, profitability, and the decision-making processes (Nichols, 2004).

Impact of AI in Auditing

Expertise in analyzing financial and operational data has always been the cornerstone of an accountant's ability to help businesses make decisions about resource allocation. The explosion of big data combined with advances in computer technology has enabled accountants to apply analytics to gain additional insights for enhanced decision making. For example, auditors can now analyze entire datasets instead of the traditional approach of sampling a population. Widely available data visualization tools also help users discover previously unknown patterns and exceptions (Institute of Chartered Accountants in England and Wales, 2019).

The implications of automating business processes using RPA are potentially substantial savings in terms of time and cost. According to Gartner Inc., a research and advisory firm, RPA can save 25,000 hours of avoidable rework in accounting departments for an estimated $878,000 for an organization with forty full-time employees (Lovelle, J. 2019}. Within the scope of accounting, another reason to use automation is for the subsequent processes of auditing (Raschke et al., 2018). The relationship between accounting and auditing are so intertwined that the functions of each are both critical for an organization. An auditor, who typically is an accounting professional, conducts an independent assessment of accounting data or financial statements for a company. The auditor then reports on the accuracy of the financial statements. The use of RPA not only in accounting, but also auditing can provide great benefits to a company. Consideration of the benefits for the use of this technology within accounting firms provide quicker, more meticulous, and accurate review of data and information for clients (Raschke et al., 2018).

Six Principles for the Effective Use of Artificial Intelligence

Large Language Models (LLM) like ChatGPT, Bing Chat, Bard, and others can improve the efficiency of common language generation tasks performed by CPAs, but using LLMs entails certain risks. To help CPAs reap the benefits while minimizing the risks of this emerging technology, the authors suggest six principles to guide CPAs as they incorporate LLMs into their work (Street, et al. 2023). The authors recommend six (6) principles:

(1) *Develop Specific Questions and Avoid Broad Requests.* Provide LLMs with prompts that are specific, provide the context for the question, explain, or define ambiguous terms, and provide an example.

(2) *Actively Monitor the Inquiry and Interpretation Process by Breaking Down Complex Tasks into Verifiable Subtasks*. LLMs provide more accurate responses to specific tasks and questions rather than large or complex tasks. For example, ChatGPT 3.5 provides more accurate responses when prompted to generate the assets, liabilities, or stockholders' equity portions of a balance sheet separately rather than preparing an entire balance sheet at once.

(3) *Understand LLMs' Contextual Boundaries, and Do Not Input Private, Sensitive, or Proprietary Information.* inputting private, sensitive, or proprietary data input into an LLM, raises serious concerns about data storage and privacy issues. For example, LLMs could incorporate user-submitted data into their knowledge and then synthesize and provide this information to other users without the right to this data.

(4). *Carefully Scrutinize and Recalculate Quantitative Responses.* LMs are not designed to produce quantitative responses, nor are they skilled at mathematical procedures, although they will provide numeric text if that text is predicted to be the best in a given response. LLMs are not designed to produce quantitative responses, do not use LLMs to actually perform mathematical calculations.

(5) *Rely on Other Sources for Factual Information, Especially for Less Prominent Topics.* The more frequently an item appears in an LLM's corpus, the more knowledgeable the LLM will be about that topic. More prominent concepts, events, and firms appear more frequently in the corpus, and allow the LLM to respond more capably to prompts on these subjects. For example, an LLM is much more capable of addressing questions about federal tax law than about municipal tax regulations. CPAs should rely more on the responses provided by LLMs for topics that are more prominent

(6) *Use LLMs to Enhance Rather than Replace Human Expertise*. Even if LLMs are improved technically to understand the nuanced context of accounting events and to properly perform the required mathematical operations, LLMs will not be able to exercise the professional judgment of a CPA when it comes to the qualities of decision-useful information. LLMs can make the work of a CPA more efficient and potentially more effective, but they cannot replace a CPA's expertise.

Will AI replace accountants?

The applications of AI are many and varied-from self-driving cars to human speech recognition to predictive decision-making investment tools. Most recently, the general public has become aware of Natural Language Learning Models (LLM) due to the public release of ChatGPT and BARD, automatic web-based learning machines (Rechtman, 2023). The author convened a focus group of experts in auditing, tax, internal auditing, risk management, and forensic accounting to evaluate the responses of an AI to professional queries. All federal agencies use private sector audit firms for their financial statements, except for the SEC and the IRS, both of which are audited by the Governmental Accountability Office (GAO). The author decided to use the Google-sponsored BARD system because it was more readily available to the team of professionals (ChatGPT requires an invitation). The purpose was to assess the current state of the BARD LLM as an example of LLMs overall. It is not a specific comparative assessment, but rather more of an experiment to answer the question: can an AI LLM be an "expert" in accounting? (Rechtman, 2023). The panel used the principles of Bloom's Taxonomy, which employs a hierarchy of learning, from basic remembering through to creativity. The panel's goal was to establish if BARD, the candidate for expert AI, could rise to the level of "evaluating" facts and circumstances. Based on this standard, some panelists assigned a grade level to the AI, from "A" to "F." The conclusion was that AI is still a work in progress. The prevailing thoughts of the subject-matter experts were that the AI is not yet ready for prime time when it comes to presenting professional expertise. This is a developing paradigm, and much can be learned in the interim by what LMM did not do well, and why it did not perform as well as an individual with expertise, experience, and human intuition (Rechtman, 2023).

The belief and fear that automation will replace many jobs or professions. As discussed earlier, automation has supplemented its role in performing repetitive tasks across a variety of industries, the first being manufacturing and factory workers. Through automation technology advancements, this belief now includes the accounting and finance industry. According to Guthrie and Parker (2016), there is a possibility of decline within the profession not only due to technology, but also due to split views of the role academic researchers. As with any sustainability of any profession policies, practices, research needs to be continuous. When any of these processes face a decline, viability may come into question. Therefore, it is extremely critical for the performance of academic researchers within accounting and finance remain stable or increase to enhance communications to the policy makers and practitioners facing the roles of bots within the industry

(Guthrie and Parker, 2016). An increasingly popular view regarding technology within the accounting and financial world presented by Grabowski et al. (2018), is that technology is a partner and not a threat. Steinhardt (2023) also states that reports from The Big Four accounting firms are investing heavily in generative artificial intelligence (AI), but all four agreed that technology will not replace accountants. AI will augment productivity and efficiency by taking over simple tasks such as data entry. Humans are still needed to make the appropriate judgment calls based on the data. AI cannot take responsibility for an audit opinion. It requires a person who is an experienced qualified professional to make decisions (Steinhardt, 2023).

Conclusion

The application of an AI tool for accounting extends far beyond chatbot interfaces like ChatGPT. It can also delve into the realm of machine learning for data analysis and helping the firm solve a myriad of challenges, such as reducing workload, increasing capacity without increasing headcount, detecting fraud, and providing monetizable insights. Such capabilities enable accounting firms to adopt a more proactive and strategic approach to the operations, enhancing efficiency, profitability, and the decision-making processes. Adopting AI tools in accounting is a strategic move towards efficiency, accuracy, and insightful financial management. It can improve the accounting firm's operations and use the technology to offer scalable solutions to meet the growing business demands. It offers honed developments for accountants, focusing on where AI can make the biggest difference and deliver the greatest benefits. The overall outlook for accounting and finance professionals is the increased use of automation technology. Automation has supplemented its role in performing repetitive tasks across a variety of industries, including the accounting and finance industry. However, technology is a partner and not a threat. A machine cannot take responsibility for an audit opinion. It requires a person who is an experienced qualified professional to make decisions. AI tools provide pulling out information and making predictive choices, but it cannot replace human judgment. The Big Four accounting firms embrace automation and artificial intelligence technology and have agreed that technology will not replace accountants. AIs are an augmentation not a replacement for professionals in accounting and finance. These professionals need to evolve with the technology and expand upon what was originally required of them and perform the duties that require data analysis and interpretations, conceptual thinking, insightfulness, and making judgement calls that the AI might not as efficiently be able to make. Becoming educated in the differences of the automation technology, the reasons for its use and proper application, and developing comprehensive strategies for AI in accounting will better prepare professionals to maintain long-term success, relevance, and stability within the accounting profession.

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INTERNAL CHARACTERISTICS THAT MAY INFLUENCE FRAUD DETECTION: AN EXTENSION OF DINAPOLI

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ABSTRACT

This study examines the management and employee red flags established by the Office of the State Comptroller in the State of New York. While previous studies included red flag investigations for external auditors, this study incorporates the insufficiently researched characteristics of management and employees that signify a higher risk of fraud or error. Findings conclude external auditing experience and certain certifications substantially increase the effectiveness of management and employees in detecting fraud.

Key Words: Red Flag Fraud, Internal Characteristics, Management Characteristics, Employee Characteristics, Thomas DiNapoli

INTRODUCTION

This study is an extension of the *Local Government Management Guides*, a series of publications created by the New York State Comptroller, Thomas DiNapoli. DiNapoli launched his career in 1972 as the "first 18-year-old in the State of New York to hold public office". In 1986, he began a twenty year venture representing New Yorkers in the 16th District of northwestern Nassau County. DiNapoli was elected Comptroller of the State of New York in 2007, 2010, 2014, 2018, and 2022 (Office of the State Comptroller, State of New York, 2024a).

As the state's chief financial officer, DiNapoli considers "protecting taxpayer funds by uncovering waste, fraud, and abuse" a vital responsibility (Office of the State Comptroller, State of New York, 2024b). DiNapoli's experience and scholarship led to the creation of the 20 management and 13 employee internal fraud detecting red flags. Included in the *Local Government Management Guides* series of publication, *Improving the Effectiveness of Your Claims Auditing Process* explains the importance of the audit of claims to internal controls and introduces the fraud detecting red flags created by Thomas DiNapoli (Office of the State Comptroller, State of New York, 2024c).

This paper explores the effectual degree of fraud detection by expanding DiNapoli's 20 management and 13 employee internal red flags to include the perspective of 203 business professionals. In this study, 203 respondents completed the management and employee red flag questionnaire. As organizational managers, the respondents represented middle and executive officers in business corporations. Shown in Table 1, these respondent organizational managers are classified in three different groups: 96 Chief Executive and Financial Officers, 58 Controllers and Treasurers, and 49 Human Resource Directors. The number of questionnaires from respondents was too low for regression models to be developed on each one of these three groups. The logistic regression created for this study resulted from statistically analyzing data collected from all 203 respondents.

TABLE 1 DEMOGRAPHIC INFORMATION ABOUT RESPONDENTS

RESPONDENT DEMOGRAPHIC INFORMATION	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
Different Job Titles of Respondents		
Chief Executive or Financial Officers	96	47.3%
Controllers and Treasurers	58	28.6%
Human Resource Directors	49	24.1%
Total	203	100%
Types of Certification		
Certified Public Accounting	85	42.0%
Chartered Financial Analyst	26	13.0%
Certified Management Accountant	18	8.8%
Certified Internal Auditor	15	7.4%
Non-Business Certifications	12	5.8%
No Certifications	47	23.0%
Total	203	100%
Types of Graduate Degrees		
Master of Business Administration	90	44.1%
Master of Accounting	54	27.1%
Master of Finance	31	15.0%
Master of Auditing	15	7.4&
Master of Taxation	8	3.9%
Doctor of Business Administration in Accounting	5	2.5%
Total	203	100.0%
Organizations Have Detected Employees Committing Fraud		
Organizations Detected Fraud	190	94.0%
Organizations Have Not Detected Fraud	13	6.0%
Total	203	100.0%

Out of the 203 respondents, 156 organizational managers held the five following different types of accounting and finance certifications: Certified Public Accountants, Certified Management Certifications, Certified Internal Auditors, Chartered Financial Analysts, and non-business certifications. Forty-seven organizational managers held no certifications. In Table 1, all 203 organizational managers held one of the six following different types of accounting and business graduate degrees: Master of Business Administration, Master of Accounting, Master of Finance, Master of Auditing, Master of Taxation, and Doctor of Business Administration in Accounting.

Out of the 203 respondents, 190 business professionals have detected fraud within their corporate organizations, and the remaining 13 have never detected fraud as seen in Table 1.

RED FLAG HISTORIAL PERSPECTIVE

In 2001, the collapse of Enron and WorldCom was attributed to fraudulent financial reporting activities. Enron represented the largest utility company in the United States, and the U.S. based WorldCom was one of the world's largest telecom companies. In addition, destroying audit evidence and concealing of fraudulent activities caused the collapse of Arthur Anderson (U.S House of Representatives, 2002), Enron's external auditor and the largest international public accounting firm (Unerman and Odwyer, 2004).

The duplicitous endeavors of Enron, WorldCom, and Arthur Anderson forced immediate ethical developments. First, the U.S. Congress enacted the Sarbanes-Oxley Act of 2002 (U.S. House of Representatives, 2002). According to the American Institute of Certified Public Accountants (AICPA) (2002b), this Act established the Public Company Accounting Oversight Board (PCAOB) with the responsibility of establishing auditing standards for CPA firms that audit financial statements of public corporations. The Securities and Exchange Commission delegated oversight authority to the PCAOB in the areas of funding, functions, powers, and duties. Second, the Auditing Standards Board (AICPA, 2002b) published the Statement of Auditing Standard (SAS) No. 99 - Consideration of Fraud in a Financial Statement Audit. This standard requires external auditors conducting financial statement audits to use 42 fraud detecting red flags when auditing the financial reporting activities of publicly traded corporations (AICPA, 2002b).

The Statement of Auditing Standard (SAS) No. 99 – Consideration of Fraud in a Financial Statement Audit (AICPA, 2002b) requires external auditors to "obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud." Later, the PCAOB adopted the SAS No. 99 as part of the PCAOB Accounting Standards. SAS No. 99 requires the use of 42 red flags to detect fraud during financial statement audits. Red flags represent indications of potential material misstatements caused by fraud or errors. Internal auditors are allowed to assist external auditors in detecting fraudulent material misstatements and like external auditors, are required to utilize the 42 red flags (AICPA, 2002a). The International Professional Practices Framework of Institute of Internal Auditors (Institute of Internal Auditors, 2017) defines the role of internal auditors to detect, prevent, and monitor fraud risks that directs the planning of the audits performed by organizations.

More than twenty years after the collapse of Enron, WorldCom, and Arthur Anderson, financial fraudulent schemes persevere. According to the Association of Certified Fraud Examiners (2022, p.6), the largest anti-fraud organization, employees committing organizational fraud or fraud against their employers, "is very likely the costliest and most common form of financial crime in the world." The Association of Certified Fraud Examiners continues, "even with the shift toward digital payments, remote work environments, and technology-based organizations, the schemes and methods fraudsters use to commit occupational fraud remain consistent over time" (Association of Certified Fraud Examiners, 2022. p.9). The cost of fraud averages five percent of the total revenue generated by each corporation in a year with employees committing 41 percent of the fraud, managers committing 35 percent, and the owners and executive officers committing 20 percent (Association of Certified Fraud Examiners, 2020).

LITERATURE REVIEW OF PRIOR STUDIES

Accounting and Finance Certifications

Studies have explored the influence of professionals holding accounting certifications for improving the effectiveness use of red flags to detect fraud. According to the Indeed Career Guide (Indeed.Com., 2024), the accounting certifications that provide the best opportunities for high salaries and prestigious accounting positions are: (1) certified public accountant, (2) chartered financial analyst, (3) certified management accountant, (4) enrolled agent, (5) certified financial services auditor, (6) certified internal auditor, (7) certified fraud examiner, and (8) chartered global management accountant. The CPA represents the most valuable endorsement for accounting and finance jobs for the following reasons: (1) public acceptance and reputation, (2) development of auditor career, (3) high demand and legal requirement to conduct financial statement audits, (4) extreme job satisfaction derived from performing various auditing and accounting functions, and (5) highly competitive salaries and employment benefits (Elkins, 2021). According to Hasselback (2016, as cited by Emerson and Smith, 2018), 72 percent of accounting professors graduating with doctoral degrees from 1994 to 1998 had acquired the CPA certification. Jordan and Clarke (2017) state that 56 percent of the accounting faculty at universities accredited by the Association to Advance Collegiate Schools of Business are CPAs.

The PCAOB (2024) requires CPA certifications as auditors conduct financial statement audits to maintain a professional skeptical attitude. A professional skeptical attitude expects auditors holding CPA certifications to question auditing issues and critically assess the audit evidence concerning such issues. This attitude enhances the CPAs' critical importance to plan and conduct financial statement audits as well as to report audit opinions. According to the AICPA Professional Responsibilities (AICPA, 2024), the state board of accountancy licenses and regulates CPAs to enhance their proficiency and quality of services. Charron and Lowe (2008) stated, "The rationale behind [accounting] standards is that high levels of professional skepticism [assuming a more questioning attitude] enhances the ability to detect fraud." Thus, auditors that hold the CPA certification and maintain a professional skeptical attitude are more likely to be more effective in detecting fraud conducting financial statement audits than non-CPA auditors.

The CMA certification is a valuable credential for corporate accounting and finance jobs. The CMA's popularity and success may be explained by its universal application and adaptation ease to a company's unique requirements (Cooper, *et al*., 2017). In comparison, the CFA certification is a valuable credential for executive accounting and finance corporate positions.

Accounting and Auditing Experience

Sihombing, Rujiman, and Muda (2019) found the experienced auditor has a greater ability to detect fraud by applying auditing knowledge than the less experienced auditor as concluded by Choo and Trotman (1991). Auditing knowledge is acquired from years of auditing experience as confirmed by Wright and Wright (1997). Similarly, Shamki and Alhajri (2017) verified a positive relationship between internal auditor effectiveness and the number of years of auditing experience. Moreover, Bond and DePaulo (2008) found highly experienced auditors performed with 67 percent accuracy in making auditing decisions, and 78 percent accuracy in making auditing decisions not involving fraud. Where internal auditing in concerned, Moyes, *et.al* (2022) found the opposite conclusion that internal auditing experience caused no significant impact upon the auditor ability to detect fraud.

Accounting and Business Graduate Degrees

Graduating with some graduate (master's level) accounting degrees may influence the effectiveness of red flags in fraud detection by auditors. The specific academic courses required to graduate with a master's degree may determine if such a master's degree might assist professionals to detect fraud. For example, Ohio University (2024) offers an online MBA program with an accounting concentration, which includes 9 semester hours in accounting courses but no auditing or fraud courses. This MBA program would not assist professionals in detecting fraud. The University of Illinois Urbana – Champaign (2023) has a 32 semester-hour online Master of Accounting that includes one auditing course. Graduating with this Master of Accounting degree may enhance the understanding of the professionals to detect fraud. Weber State University (2023) provides a Master of Taxation (online or in residence) consisting of a total of 24 semester hours with two elective auditing courses. If a student graduates with a WSU Master of Taxation that includes two elective auditing courses, the student may possess knowledge to detect fraud. DePaul University (2023) offers a comprehensive 36 semester-hour Master of Auditing and Advisory Services degree, which requires: three auditing courses, two forensic accounting courses, and one data mining analysis course as well as two elective auditing courses. The DePaul University (2023) master program provides courses that would enhance the ability of professionals to detect fraud. Arizona State University (2024) has a 30 semester-hour Online Professional Master of Forensic Science that offers 10 forensic-type courses. This ASU (2021) master program provides the accumulated knowledge to make professionals become professional fraud investigators. Utica College (2023) offers a 30 semester-hour Online Master of Cybersecurity that includes courses in forensic analysis, data mining analysis, electronic crime, malware, and two courses in cybersecurity analysis. The Utica College (2023) master program provides the necessary accumulated knowledge for professionals to become effective investigators in computer fraud. The graduate

degrees that may improve the ability of professionals to detect fraud should include courses in auditing, forensics, fraud investigation, data mining, computer crimes, and cybersecurity.

RESEARCH DESIGN AND METHOLDOLGY

While the 42 flags required by the AICPA (2002b) are common for external auditors, this study investigates the 33 red flags that were established for internal auditors by Thomas P. DiNapoli, the New York State Controller (Office of the State Comptroller, State of New York, 2024c). DiNapoli's 33 red flags are unique from the SAS No. 99 red flags and are designed primarily for the purpose of internal audit fraud detection. These 33 red flags are classified into two groups: 20 management red flags and 13 employee red flags. In this study, 203 professionals (referred to as organizational managers) attempted to determine the effectiveness of each of these 33 red flags by responding to a six-point Likert scale.

DiNapoli's red flags are based on "certain characteristics" that he believes indicate a higher fraud or error risk. As a basis for creating internal red flags, he focused on claims that contained the following characteristics (Office of the State Comptroller, State of New York, 2024c).

- Missing documents
- Unavailability of original documents
- Recurring identical amounts from the same vendor
- Multiple remittance addresses for the same vendor
- Inconsistent, vague or implausible responses arising from inquiries or analytical procedures
- Excessive voids or credits
- New vendors, especially if payment goes to a post office (PO) box
- Items purchased that are not clearly identified
- Goods delivered outside of a central location or to an unusual delivery point
- Credit card charges with no original receipts attached
- All travel and conference claims, as they are inherently risky
- Alterations or questionable handwriting on documents
- Duplications
- Payments to a vendor that have increased dramatically for no apparent reason
- Payments to vendors for construction work not certified as completed by your architect or engineer
- Unusual delays in providing requested information
- Tips or complaints about possible fraud.

Hypotheses

The five hypotheses for this study are listed below:

H1: Does any one of the five different accounting or finance certifications held by the organizational decision (respondents) maker(s) influence their critically analytical ability to determine whether the occurrence of fraud is detected or not?

H2: Does the number of years of external auditing experience acquired by the organizational decision (respondents) maker(s) influence their critically analytic ability to determine whether the occurrence of fraud is detected or not?

H3: Does the number of years of internal auditing experience acquired by the organizational decision (respondents) maker(s) influence their critically analytical ability to determine whether the occurrence of fraud is detected or not?

H4: Does the number of years of corporate accounting experience acquired by the organizational decision (respondents) maker(s) influence their critically analytical ability to determine whether the occurrence of fraud is detected or not?

H5: Does any one of the five different graduate degrees held by the organizational decision (respondents) maker(s) influence their critically analytical ability to determine whether the occurrence of fraud is detected or not?

Red Flag Instrument

The questionnaire used a six-point Likert scale to measure the degree of effectiveness of the 20 management and 13 employee red flags in detecting fraud as perceived by the 203 respondent organizational managers. The values of the six-point Likert scale ranged from 1 to 6 that represents red flags perceived the most influential in making the fraud detection decisions. The SPSS computer program analyzed the data collected from the 203 completed questionnaires. For each management and employee red flag, each organizational manager selected one of the six different values (1 to 6) to represent their perceived level of influence that one red flag had in making fraud detecting decisions. The level of influence perceived by the 203 respondents was entered into the SPSS program that represented the six different degrees of effectual fraud detection as perceived by all 203 respondent organizational managers. Also, the red flag questionnaire included demographic questions concerning certifications and graduate degrees.

Variable Definitions

The dependent variable is shown:
Detection = Organizational management deciders (respondents) have detected fraud (1) or not (0)

The five independent variables are listed below:
Certifications = One of five different accounting or finance certificate (values ranged between 1 and 5) held by the organizational managers that may influence whether fraud is detected or not

IntAuditExp = Number of years (value > 0) of internal auditing experience acquired by the organizational managers which may influence whether fraud is detected or not

ExtAuditExp = Number of years (value > 0) of external auditingexperience acquired by the organizational managers may influence whether fraud is detected or not

CorpAccountExp = Number of years (value > 0) of corporate accounting experience acquired by the organizational managers may influence whether fraud is detected or not

GradDegrees = One of six different accounting or business graduate degrees (values ranged between 1 and 6) held by the organizational managers that may influence whether fraud is detected or not

Values of Independent Variables

The explanations independent variable values are shown in Table 2. The binary dependent variable, Detection, represents whether the organizational manager detects (1) fraud or not (0). These five independent variables may influence organizational managers to determine whether fraud is detected or not.

TABLE 2 EXPLANATIONS OF INDEPENDENT VARIABLE VALUES

VARIABLE NAMES	VARIABLE DECRIPTIONS	VALUES	VALUE LABELS
IntAuditExp	Internal Auditing Experience Acquired by Organizational Managers	More Than 1	Number of Years
ExtAuditExp	External Auditing Experience Acquired by Organizational Managers	More Than 1	Number of Years
CorpAccountExp	Corporate Accounting Experience Acquired by Organizational Managers	More Than 1	Number of Years
GradDegrees	Master and Doctorate Degrees Held by Organizational Managers	1	Master of Business Administration
		2	Master of Accounting
		3	Master of Taxation
		4	Master of Auditing
		5	Master of Finance
		6	Doctor of Business Administration in Accounting
Certifications	Accounting and Finance Certifications Held by Organizational Managers	0	No Certifications
		1	Certified Public Accountant
		2	Certified Management Accountant
		3	Certified Internal Auditor
		4	Chartered Financial Analyst
		5	Non-Business Certifications

As a respondent, each organizational manager recorded the number of years of experience on the red flag questionnaire for each other three variables, IntAuditExp, ExtAuditExp, and CorpAccounExp. Each respondent selected a value from 1 and 6 for the GradDegree variable to indicate which type of the six different graduate degrees that each respondent received from a university. Similarly, each respondent

selected a value of 0 to indicate a lack of Certification or from 1 to 5 to indicate one of the five different Certifications that the respondent had acquired. The perceived values that the respondents indicated on the questionnaire variables were statistically analyzed by the SPSS program that produced a binary logistic regression equation. The dependent variable, Detection, may be influenced to some degree by any of the five independent variables that are various attributes of organizational managers who determine if fraud had been detected or not.

Statistical Analysis

Utilizing the responses from the 203 professionals, the red flag questionnaire values were analyzed. A binary logistic regression equation was created using the data collected from all 203 respondents. There was an insufficient number of complete usable questionnaires to develop a regression model for each of the three subgroups: chief executive and financial officers, controllers, and human resource directors. The dependent variable, Detection, is binary since the value of 1 indicated the corporations had detected fraud and the value of 0 indicated the corporations had not detected fraud. The five independent variables were IntAuditExp, ExtAuditExp, CorpAccountExp, GradDegrees, and Certifications. The binary logistic regression equation may indicate whether the each of the five independent variables may influence the detection of fraud.

Logistic Regression Equation

The binary logistic regression equation with the dependent variable representing whether fraud is detected or not is shown below:

$$\text{Detection} = \beta_0 + \beta_{1*}\text{IntAuditExp} + B_{2*}\text{ExtAuditExp} + B_{3*}\,\text{CorpAccountExp} + \beta_{4*}\,\text{GradDegrees} + \beta_{5*}\,\text{Certifications} + €$$

Beta Coefficients and P Values

Table 3 summarizes the Beta Coefficients and P Values for the five independent variables. This binary logistic regression model is significant (P =.0005).

TABLE 3

TABLE 3 LOGISTIC REGRESSION EQUATION FOR FRAUD DETECTION DECISIONS

DETECTION INDEPENDENT VARIABLE NAMES	ALL 203 PROFESSIONAL RESPONDENTS	
	Beta Coefficient	P Value
Accounting and Finance Certifications (Certifications)	-.508	.095***
Number of Years of External Auditing Experience (ExtAuditExp)	.570	.088***
Number of Years of Internal Auditing Experience (IntAuditExp)	.088	.332 NS
Number of Years of Corporate Accounting Experience (CorpAccountExp)	-.026	.497 NS
Graduate Degrees Held by Organizational Managers (GradDegrees)	.064	.831 NS
Constant	2.471	.113 NS

Model Significance				.001*
Chi-Square				21.003
-2 Log Likelihood				42.001
Cox and Snell R Square				.127
Nagelkerke R Square				.379
Level of Significance	* < 1%	** < 5%	*** < 10%	NS = Not Significance

RESULTS

Accounting and Finance Certifications (Certifications)

As an independent variable, Certifications represents five different types of accounting and finance (business) certifications, of which these various certifications are held by the 203 organizational managers (respondents). As an independent variable, Certifications is marginally significant (p =.095) for the logistic regression equation and supports the first hypothesis for the accounting and finance certifications. The possession of the CPA represents the most influence upon organizational managers in improving their analytical ability to enable more accurate decision making to determine whether fraud is occurring or not. The CMA certificate indicates the second most influence in determining more accurate decisions concerning the occurrence of actual fraud. The CIA certificate indicates the third most influence upon the organizational managers in making more accurate decisions of fraud occurring. In addition, the accounting certifications (CPA, CMA, and CIA) and the finance certification (CFA) are perceived as being more influential in making fraud detecting decisions using red flags than non-accounting or finance certifications. This conclusion is generally supported by the findings of Elkins (2021), Hasselback (2016, as cited by Emerson and Smith, 2018), Jordan and Clark (2017), Public Company Accounting Oversite Board (2018), AICPA (2022), Charron and Lowe (2008), and Indeed.Com. (2024).

Number of Years of External Auditing Experience (ExtAuditExp)

As an independent variable, the number of years of external auditing experience (ExtAuditExp) is marginally significant (p =.088) in the logistic regression equation and supports the second hypothesis. The more years of external auditing experience acquired by organizational managers implies that they should develop a more analytical ability to determine if red flags had actually detected fraud or not. This direct relationship between the number of years of external auditing experience and red flags used to detect fraud is in general agreement with prior studies by Bonner and Lewis (1990), Choo and Trotman (1991), and Shamki and Alhajri (2017).

Number of Years of Internal Auditing Experience (InternalAuditExp)

As an independent variable, InternalAuditExp, is not significant (p = .332). Therefore, the third hypothesis is rejected. As organizational managers acquire more years of internal auditing experience, these managers may not improve their analytical ability to use red flags for detecting fraud. This study does not prove that any direct relationship exists between the number of years of internal auditing experience acquired by the organizational managers (respondents) and their ability to detect fraud by using red flags. This finding is the opposite of the conclusions determined from prior studies. Most studies imply that some degree of a direct relationship can be found between the number of years of internal auditing experience and the internal auditor's ability to use red flags for detecting fraud.

Internal auditors conduct different types of audits in organizations such as financial, compliance, and performance evaluations. With these diverse types of different audits, internal auditors should be considered the second most effective in using red flags to detect fraud.

Corporate Accounting Experience (CorpAccountExp)

The independent variable, CorpAccountExp, represents the number of years of corporate accounting experience acquired by organizational managers (respondents) and is not significant (p =.497), which rejects hypothesis 4. The number of years of corporate accounting experience acquired by organizational managers does not influence their analytical ability to determine whether fraud occurred or not.

Graduate Degrees (GradDegrees)

The independent variable, GradDegrees, represents all six different accounting, finance, and business graduate degrees that the organizational managers (respondents) had received from universities. GradDegrees is not significant (p =.831), which rejects hypothesis 5. Whichever one of the six different graduate degrees held by the organizational managers does not influence their analytical ability to determine whether fraud occurred or not.

Graduating with a Master of Auditing, Master of Accounting, or a Doctor in Business Administration in Accounting may improve the analytical ability of an organizational manager so that they are effective in using red flags to determine whether fraud is occurring or not. Receiving a Master of Business Administration or Master of Finance degree is not likely to enhance the analytical ability of organizational managers so that they may be more effective in using red flags to make a more accurate determination as to whether fraud is occurring or not.

The study concluded that holding the Master of Accounting does not influence the organizational managers in deciding if fraud is actually occurring or not, but they may be slightly more effective in using red flags to make a more accurate decision as to whether fraud is really occurring or not, which agrees with the discussion concerning University of Illinois Urbana – Champaign (2023).

Similar to the Master of Accounting findings, the study concluded that holding the Master of Auditing does not influence the organizational managers in deciding if fraud is actually occurring or not, but they may be slightly more effective in using red flags to make a more accurate decision as to whether fraud is really occurring or not, which agrees with the DePaul University (2023) discussion.

CONCLUSION

The interpretation of the binary logistic regression model indicates that the number of years of internal auditing experience does not significantly influence the analytical ability of organizational managers to detect fraud occurring or not. In contrast, the more years of external auditing experience acquired by organizational managers significantly (p=.086) increases their analytical ability to detect fraud occurring or not.

Graduating with accounting and finance master's degrees does not influence the analytical ability of the organizational managers to detect fraud occurring or not. Organizational managers holding a Master of Accounting degree are likely to be slightly more effective in detecting fraud using red flags, and the organizational managers holding a Master of Auditing degree are likely to be moderately more effective in detecting fraud using red flags.

Certifications significantly influence the detection of fraud or not, with the CPA certification having the most significant influence in increasing the analytical ability to determine whether the occurrence of fraud is detected or not. The CMA certification has the second most significant influence in increasing the analytical ability to determine whether the occurrence of fraud is detected or not. The CIA certification has the third most significant influence in increasing the analytical ability to determine whether the occurrence of fraud is detected or not. The CFA certification has the least significant influence in increasing the analytical ability to determine whether the occurrence of fraud is detected or not.

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NEW ACCOUNTING FOR OLD CRYPTOCURRENCIES

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ABSTRACT

Cryptocurrency is defined as digital or virtual currency created using cryptography for verification and security purposes, on a distributed ledger or the blockchain. The blockchain is a digital, decentralized ledger that keeps a record of all transactions that take place across a peer-to-peer network and that enables the encryption of information. Prior to this point in time there has been no authoritative guidance for the accounting for digital assets and in October 2020 FASB rejected a call to consider digital asset accounting, stating that few companies actually invested in volatile assets such as cryptocurrency. However, according to Maurer 2021, in response to the June 2021 FASB agenda request many companies, accountants, investors, and auditors asked FASB to formulate rules on how to account for cryptocurrency assets and transactions (Maurer 2021). As cryptocurrency gained traction and its market capitalization soared, the FASB recognized the need for more comprehensive accounting guidance. In March 2023, the FASB issued a proposed Accounting Standards Update (ASU) that introduced a fair value measurement model for cryptocurrency held by entities. This marked a significant shift in the FASB's stance, aligning with the growing consensus that cryptocurrency is a distinct asset class with its own valuation dynamics.

Key Words: Cryptocurrency, Fair Value Accounting, Digital Assest

INTRODUCTION

In October of 2020 FASB's position was that the market for digital assets was not important enough for them consider formulating a standard to deal with digital asset accounting. However, according to Crypto.com, since the third quarter of 2020, the number of cryptocurrency users has more than doubled. For the past ten years, Bitcoin, the largest cryptocurrency by market capitalization, has grown at an average annual rate of 250%. In April 2021, the appreciation of Bitcoin's value created a market capitalization of over $1.1 trillion and surpassed Facebook's market cap. In June 2021, the number of global cryptocurrency users reached 221 million. To add perspective, it took only nine months for the global crypto users to grow from 65 million to 100 million, and approximately four months to double the population from 100 million to 200 million. Deloitte's 2021 Global Blockchain Survey found that 76% of the respondents believe digital assets will serve as a strong alternative to, or outright replacement for, fiat currencies in the next five to ten years.

IMPORTANCE OF CRYPROCURRENCY

According to research from Fidelity Digital Assets' 2021 Institutional Investor Digital Assets Study, seven in ten institutional investors expect to buy or invest in digital assets in the future. They report that more than 90% of those interested in digital assets expect to have an allocation in their institutions or client's portfolios within the next five years. Cryptocurrency is becoming important to company executives, investors, auditors and stakeholders.

Two outside factors support the potential growth of the market for cryptocurrency. One is the tremendous growth of the use of digital assets and cryptocurrency in adjacent industries. For example, crypto mining, which is the process where specialized computers validate blockchain transactions for a specific crypto coin and receive a mining reward for their effort, had a market of $888.2 million in 2019 and is expected to grow by $2.8 billion during 2020-2024, according to the Chamber of Digital Commerce. Another factor that supports the potential for this market is the new talent it is attracting. LinkedIn Jobs Report for 2020 identified blockchain-related jobs as having the top job demand. UpWork, which is the largest freelancing platform, has blockchain skills rated as number one in terms of the fastest-growing skills of 2020. Digital asset expertise and blockchain skills are increasing in demand as the digital asset market grows. Many publicly traded companies, private companies and even governments have purchased bitcoin and other digital assets as a hedge for fiat inflation and treasury reserves. Currently, public companies show about 190,000 bitcoins in total on their balance sheets, valued at about $8.7 billion. ETF's and mutual funds hold about 683,000 bitcoins, or about $32.4 billion. At the end of the second quarter of 2021, crypto funds collectively managed about $52.4 billion and only 39% of all funds managed less than $10 million in assets.

Many well-known companies are starting to invest in the cryptocurrency market. Approximately 55% of the world's top 100 banks are investing in digital assets. In July 2020, the Office of the Comptroller of the Currency announced that "Federally Chartered Banks and Thrifts May Provide Custody Services for Crypto Assets." Companies such as NYDIG have created structures to make it simpler for banks to offer digital assets to their consumers. Fidelity has created a prediction model that estimates bitcoin's price to hit $100,000,000 by 2035.

The FASB's approach to cryptocurrency accounting has evolved over time, reflecting the growing maturity of the cryptocurrency ecosystem and the changing perspectives of stakeholders. In the early days of cryptocurrency, the FASB acknowledged the existence of digital assets but refrained from providing specific accounting guidance. In 2014, the FASB issued ASC 820, which classified cryptocurrency as intangible assets under certain conditions, similar to intellectual property such as copyrights. Companies have to review the value of such assets at least once a year and write it down if it drops below the purchase price. If the value were to rise, companies can record a gain only when they sell the asset, not if they continue holding it.[1] This initial approach was met with criticism from some stakeholders, who argued that it failed to adequately address the unique characteristics of cryptocurrency.

The emergence of cryptocurrency as an important segment of financial assets has been challenging for traditional accounting principles and prompted the Financial Accounting Standards Board (FASB) to revisit its stance on the matter. Prior to the issuance of a new ASU, cryptocurrency was classified as an intangible asset under the FASB's existing accounting framework. This

classification implied that cryptocurrency was valued at its acquisition cost, with any subsequent changes in value recognized as impairment charges only when certain conditions were met. This approach, however, was met with criticism for failing to adequately capture the dynamic nature of cryptocurrency prices and its growing significance within the financial landscape.

LACK OF STANDARDIZED ACCOUNTING

As cryptocurrency gained traction and its market capitalization soared, the FASB recognized the need for more comprehensive accounting guidance. In March 2023, the FASB issued a proposed Accounting Standards Update (ASU) that introduced a fair value measurement model for cryptocurrency held by entities. This marked a significant shift in the FASB's stance, aligning with the growing consensus that cryptocurrency is a distinct asset class with its own valuation dynamics. The adoption of fair value accounting for cryptocurrency stems from several key considerations. One consideration is market value relevance as cryptocurrency prices are readily observable through active exchanges, providing a reliable basis for fair value measurement. Another is economic significance as cryptocurrency holdings can have a substantial impact on an entity's financial position, necessitating accurate valuation. Lastly transparency and comparability as fair value accounting enhances transparency and comparability among entities holding cryptocurrency assets.

The proposed ASU introduced a fair value measurement model for cryptocurrency held by entities, representing a paradigm shift in the FASB's approach. Under this model, cryptocurrency is valued at its current market value, reflecting the prevailing market sentiment and the asset's ability to generate cash flows. This approach better aligns with the economic realities of cryptocurrency and provides a more accurate representation of its financial position. The adoption of fair value accounting for cryptocurrency entails several notable differences from the previous approach. The first difference is the valuation method. The new ASU mandates fair value measurement, while the old statement required cost-based valuation. Another difference is Impairment Testing. The new ASU requires impairment testing for cryptocurrency held for sale or if indications of impairment exist, while the old statement did not explicitly require impairment testing. Lastly there are disclosure Requirements. The new ASU imposes more comprehensive disclosure requirements for cryptocurrency holdings, including details about valuation methods, impairment assessments, and risks associated with cryptocurrency investments.

The shift to fair value accounting for cryptocurrency has several significant implications. One being enhanced transparency. Fair value accounting provides a more transparent and accurate representation of cryptocurrency holdings on company balance sheets. Another implication is improved comparability. Companies holding cryptocurrency can now be compared more effectively across industries and geographies. Another implication is Greater Risk Management. The new ASU's emphasis on impairment testing and disclosure enhances risk management practices for cryptocurrency investments. The FASB's revised approach to cryptocurrency accounting marks a pivotal moment in the evolution of financial reporting standards. By embracing fair value accounting and imposing more stringent disclosure requirements, the FASB has taken a significant step towards ensuring that financial statements adequately reflect the realities of cryptocurrency investments. As the cryptocurrency ecosystem continues to mature, the FASB's

ongoing evaluation of accounting standards will be crucial in maintaining the relevance and effectiveness of financial reporting.

The adoption of fair value accounting for cryptocurrency under the new ASU has several notable impacts on financial statements. One being enhanced accuracy. Fair value accounting provides a more accurate representation of cryptocurrency holdings on company balance sheets, reflecting the current market value rather than the outdated acquisition cost. "An entity shall measure crypto assets at fair value in the statement of financial position. Gains and losses from changes in the fair value of crypto assets shall be included in net income.[2] Another impact is Increased Volatility. Cryptocurrency prices are inherently volatile, leading to potential fluctuations in net income and comprehensive income due to fair value adjustments. Another impact is Risk Disclosure. The new ASU mandates enhanced disclosure requirements for cryptocurrency holdings, including details about valuation methods, impairment assessments, and risks associated with cryptocurrency investments.

The proposed ASU has been met with mixed reactions from the business community. First there are supporters. Proponents of the new ASU commend its emphasis on transparency and accuracy, arguing that fair value accounting better reflects the economic realities of cryptocurrency investments. Then there are some critics. Opponents' express concerns about the increased volatility introduced by fair value accounting, arguing that it could distort financial performance and hinder long-term investment decisions. The new standard is expected to be simpler for firms that hold crypto assets, because a company will report the value of the asset based on its level on a given exchange at the end of the reporting period, rather than having to follow the ups and downs of an asset's value through a reporting period to report the lowest level.[4] Industry groups representing cryptocurrency businesses have advocated for a more tailored approach to cryptocurrency accounting, considering the unique characteristics of digital assets.

The new ASU represents a significant step forward in the accounting treatment of cryptocurrency, enhancing transparency and providing a more accurate representation of cryptocurrency holdings on company balance sheets. However, the increased volatility introduced by fair value accounting raises concerns about its impact on financial performance and long-term investment decisions. The Board decided that the final standard would be effective for all entities in fiscal years beginning after December 15, 2024, including interim periods within those years. Early adoption would be permitted.[3] Ongoing dialogue and collaboration between the FASB, industry groups, and the broader business community will be crucial in refining the accounting framework for cryptocurrency and ensuring that it remains relevant and effective in the ever-evolving digital landscape.

CONCLUSION

The FASB's treatment of cryptocurrency is not set in stone. The Board recognizes the dynamic nature of the cryptocurrency ecosystem and is committed to ongoing evaluation of accounting standards. As the cryptocurrency landscape continues to evolve, the FASB will adapt its approach to ensure that accounting guidance remains relevant and effective. The FASB's journey in addressing cryptocurrency accounting highlights the importance of adaptability in accounting

standards. The Board's willingness to embrace new perspectives and consider emerging technologies has resulted in a more robust and relevant accounting framework for cryptocurrency. As the cryptocurrency ecosystem continues to mature, the FASB's role in providing sound accounting guidance will remain crucial.

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A HISTORY OF DIRTY DOZEN FRAUDS: HOW DIRTY DO THEY GET?

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ABSTRACT

The IRS has published its list of Dirty Dozen Frauds since 2002. The IRS compiles the list annually to inform tax professionals and taxpayers of what it considers the most destructive and costly frauds of the year. This paper provides a concise summary of the frauds contained on the list over the last two decades. Certain frauds such as identity theft and phishing schemes are common to many years during this period. Also, during this period, novel and unique frauds were developed in order to capitalize on government program payments intended to aid taxpayers suffering financial hardship. These frauds are discussed more in depth with many occurring during the pandemic years from 2020 through 2022.

Key Words: IRS, Dirty Dozen Frauds, History, IRS Frauds

INTRODUCTION

In 2001, the IRS published a news release that included eight common tax schemes (IRS, 2001). In this News Release, IRS Commissioner Charles O. Rossetti said, "People should be on guard for these scams. If something sounds too good to be true, it probably is" (IRS, 2001). A few of these 2001 schemes were "no taxes withheld from your wages," "I don't pay taxes – why should you?" and various other promoter schemes where taxpayers are told they do not have to pay any income taxes. These frauds are based on incorrect interpretations of the tax law and have been rejected in court. Another fraud of the period was the "African-Americans Get A Special Tax Refund" fraud. Again, dishonest promoters and tax advisors told thousands of taxpayers that there was a refund or tax credit pertaining to reparations for slavery. Taxpayers who were fooled by this argument found themselves subject to a $500 frivolous return penalty (IRS, 2001). The IRS published its first full Dirty Dozen list the following year in 2002.

The intent of this paper is to provide a review of the 20+ years of the IRS Dirty Dozen lists. The first segment of this paper discusses the frauds published during the years of 2002 through 2010. Next, the authors review the Dirty Dozen lists from 2011 through 2019. The final portion of this paper discusses the most common frauds from the pandemic years of 2020 through 2022. Several frauds are common to the lists during the entire period of 2002 to 2023. In addition, there are frauds that are specific to periods in which government legislation was passed to aid taxpayers who were

struggling financially. These are the "dirtiest" of the frauds listed, since they stole money from taxpayers who needed it to survive and, instead, filled the pockets of the fraudsters.

DIRTY DOZEN LISTS - 2002-2010

The authors will provide the full Dirty Dozen lists for 2002 and 2003 to provide the reader with examples of what the IRS published each year. In future years, due to length considerations, the authors will concentrate on frauds that are new for the year under consideration. The Dirty Dozen list for 2002 (IRS, 2002) included the following frauds:

1. African-Americans Get A Special Tax Refund
2. No Taxes Being Withheld From Your Wages
3. "I Don't Pay Taxes-Why Should You?"
4. Pay The Tax Then Get The Prize
5. Untax Yourself for $49.95
6. Social Security Tax Scheme
7. "I Can Get You A Big Refund…For A Fee"
8. Share/Borrow EITC Dependents
9. IRS 'Agent' Comes To Your House To Collect
10. "Put Your Money In A Trust And Never Pay Taxes Again"
11. Improper Home-Based Business
12. Claim Disabled Access Credit For Pay Phones

Since many of these frauds are on multiple year lists, only a few of the frauds on each list are discussed in detail. From this list, the authors have selected numbers four, five, and ten. Number four is "Pay The Tax, Get The Prize." This con involves the scam artist calling taxpayers telling them that he/she has won a prize. The only catch is that the winner must pay the income tax on the prize. At this point the fraudster asks the taxpayer for bank account information that will be used to make the payment. Once the con artist has the bank information, the victim's account is typically drained of any existing balance (IRS, 2002).

Dirty Dozen number five is "Untax Yourself for $49.95." The IRS reports that this is "as old as snake oil, but people continue to be taken in" (IRS, 2002, 1). The fraudster argues that paying taxes is voluntary and for under fifty dollars the paperwork will be filed to free the taxpayer from all tax liability. The IRS states that hundreds of people have purchased these "untax packages" only to discover civil and/or criminal penalties assessed against them. The IRS has convicted numerous sellers of this type of package on criminal charges in recent years.

Item ten on the 2002 Dirty Dozen list is "Put Your Money In A Trust And Never Pay Taxes Again" (IRS, 2002). The IRS describes this scheme as a situation when unscrupulous promoters sell an abusive trust package to taxpayers at a cost of between $5,000 and $70,000. The trust creates an entity that uses foreign bank accounts and foreign corporations. In reality, these schemes are controlled by the taxpayer with only the appearance of separation of responsibility and control. "A legitimate trust completely separates responsibility and control of assets from all the benefits of ownership" (IRS, 2002, 1).

The 2003 Dirty Dozen list was issued on February 19, 2003 (IRS, 2003). News Release IR-2003-18 contained the annual updated list of Dirty Dozen frauds. The list for 2003 contained the following frauds.

1. Offshore Transactions
2. Identity Theft
3. Phony Tax Payment Checks
4. African-Americans Get A Special Tax Refund
5. No Taxes Withheld From Wages
6. Improper Home Based Business
7. Pay The Tax, Then Get The Prize
8. Frivolous Arguments
9. Social Security Tax Scheme
10. I Can Get You A Big Refund…For A Fee
11. Share/Borrow EITC Dependents
12. IRS "Agent" Comes To Your House To Collect

As mentioned earlier, many of the frauds listed were identified in multiple years. The authors will discuss numbers two, three, and nine from the 2003 list. Number two is identity theft. Over the next twenty years, this fraud is common to virtually every IRS list in one form or another.

Identity theft is one of the favorite tools of con artists (IRS, 2003). Once a taxpayer's personal and financial information is acquired, the fraudster is able to empty taxpayer bank accounts, charge large amounts to credit cards, apply for new loans or credit cards, and complete other financially damaging activities. In this news release, the IRS reports two current identity theft frauds. First, unscrupulous tax preparers used personal and financial information from client tax returns to commit identity theft. Second, fraudsters sent fictitious bank correspondence and false IRS forms in an effort to persuade bank customers to disclose his/her financial information. The IRS warned all taxpayers to provide financial information to only known and trusted parties.

Phony tax payment checks are the third fraud listed by the IRS for 2003. This fraud uses sight drafts to pay a tax liability or other personal debt. Sight drafts are fictitious financial instruments that appear to be legitimate checks. These are sold by con artists who tell taxpayers to overpay their tax liability with these sight drafts and later file for a refund. The IRS reminds taxpayers that sight drafts are worthless and of no value and that their use was a common fraud in 2003.

The ninth item on the 2003 list is the social security tax scheme. This scam promises a refund of social security taxes paid during the taxpayer's lifetime. The fraudster asks the potential victim to pay a "paperwork fee" of $100 or more plus a percentage of the refund claim sent to the IRS (IRS, 2003). Taxpayers falling for this swindle lose all of his/her up front paperwork fees paid. The IRS announced that all processing centers were aware of this fraud and were stopping all such false refund claims.

The IRS announced the 2004 Dirty Dozen list on March 1, 2004 (IRS, 2004). IR-2004-26 revealed that several new frauds reached the list including abusive trusts and the "claim of right" doctrine scams. The IRS reminds taxpayers that participation in these actions could result in imprisonment,

fines, and repayment of taxes. At the very least, innocent taxpayers falling for these schemes are often liable for significant interest and penalties.

The first six items on the 2004 list were misuse of trusts, "Claim of Right" doctrine, corporation sole, offshore transactions, employment tax evasion, and return preparer fraud. The final six frauds for 2004 included Americans with Disabilities Act frauds, African-Americans get a special tax refund, improper home based business, frivolous arguments, identity theft, and share/borrow EITC dependents (IRS, 2004). Many of these frauds were included in earlier Dirty Dozen lists.

As mentioned earlier, two new frauds on the 2004 Dirty Dozen list are abusive trusts and the "Claim of Right" fraud. Another scam that was on both the 2003 and 2004 lists involved offshore transactions. Abusive trusts were common in 2004. Unscrupulous promoters misrepresented trusts by promising fictitious benefits such as the reduction of income subject to tax, deductions for nondeductible personal expenses paid by the trust, and a reduction of gift and/or estate taxes. None of these promised benefits were legitimate. The IRS announced that it was actively examining these abusive trusts and filed injunctions against numerous fraudulent promoters in 2004.

The "Claim of Right" doctrine fraud was second on the IRS list for 2004. This scam involved taxpayers taking a deduction for the entire amount of his/her wages for the year. Promoters of this scheme advised taxpayers take a deduction and label it as "a necessary expense for the production of income," or "compensation for personal services actually rendered." Similar to many frauds in recent years, this deduction was based on a misrepresentation of the Internal Revenue Code and had no basis in actual tax law.

Fraudulent offshore transactions were at the top of the Dirty Dozen list in 2003 and was the fourth item in the 2004 list. These frauds are based on a taxpayer's use of offshore transactions to evade federal income taxes. Specifically, the use of offshore bank accounts, brokerage accounts, offshore employee leasing and other schemes to underreport income or claim false deductions (IRS, 2004). The IRS developed an investigation program beginning in 2003 that collected over $170 million in taxes, penalties, and interest from offshore fraud schemes.

The 2005 Dirty Dozen was released on February 28, 2005 (IRS, 2005). Misuse of trusts topped the list followed by frivolous arguments, return preparer fraud, credit counseling agencies, "Claim of Right" Doctrine, "No Gain" Deduction, Corporation Sole, Identity Theft, Abuse of Charitable Organizations and Deductions, Offshore Transactions, Zero Return, and Employment Tax Evasion (IRS, 2005). Many of the items in this list were also contained in previous Dirty Dozen lists.

Frivolous arguments is the second fraud on the 2005 list and involves the argument made by unscrupulous promoters that the Sixteenth Amendment, allowing for the collection of individual income taxes, was never ratified. The promoters argue that wages earned are not reportable income and paying taxes is strictly voluntary. The argument continues that being required to file a Form 1040 tax return violates the Fifth Amendment right against self-incrimination and/or the Fourth Amendment right to privacy. The IRS reminds taxpayers that such arguments are false and have been thrown out of court.

Another fraud that was new to the Dirty Dozen list 2005 was abusive credit counseling services. The IRS warned taxpayers to be aware of fraudulent credit counseling firms promising increased credit score ratings and/or the elimination of debt from most creditors including the IRS. In return for these benefits, the credit agency charged high initial fees and continuing monthly service charges. The IRS Tax Exempt and Government Entities Division has prioritized auditing of such firms since most are charging taxpayers huge fees while providing little or no counseling advice.

A third new fraud for 2005 was the "No Gain" deduction. This scam is similar to the "Claim of Right" deduction discussed earlier. Unscrupulous promoters advise taxpayers to take a deduction on "Schedule A" equal to the adjusted gross income of the individual. Promoters of this scheme advise taxpayers to label the deduction "Other Miscellaneous Deductions" and include a statement with the return using the words "No Gain Realized" (IRS, 2005).

The IRS issued the 2006 Dirty Dozen list on February 7, 2006 (IRS, 2006). IRS Commissioner, at the time, Mark W. Everson, said "I urge taxpayers not to be taken in by hucksters who promise to lower or eliminate taxes. Getting caught up in the Dirty Dozen or similar schemes can lead to big headaches" (IRS, 2006,1). The 2006 list included Zero Wages, Form 843 Tax Abatement, Phishing, Zero Return, Trust Misuse, Frivolous Arguments, Return Preparer Fraud, Credit Counseling Agencies, Abuse of Charitable Organizations and Deductions, Offshore Transactions, Employment Tax Evasion, and the "No Gain" deduction.

The two newest schemes on the 2006 list occupy the top two spots on the list. They are the zero wages scam and the Form 843 tax abatement fraud. The zero wages scenario involves the taxpayer attaching a Form 4862 (substitute W-2 form) or a corrected Form 1099 that shows little or no income for the taxpayer. Promoters of this scheme advise the taxpayer to attach a form that rebuts information provided by the IRS. As an explanation for the corrected W-2 or 1099 form, a reference is often made to the paying company's refusal to issue the corrected forms. This fraud is normally associated with the "Zero Return" scam.

The second new fraud for 2006 was the "Form 843 Tax Abatement" scheme. Form 843 is the "Claim for Refund and Request for Abatement" of taxes. Fraudsters using this ploy have often not filed tax returns and the tax they are trying to get abated has been previously assessed by the IRS through the Substitute for Return Program. Promoters of this fraud suggest that the taxpayer list some ridiculous reason for the abatement of taxes such as "Failed to properly compute and/or calculate IRC Section 83 – Property Transferred in Connection with Performance of Services" (IRS, 2006). Sufficient unscrupulous promoters were using the scam that the IRS listed as second in the 2006 Dirty Dozen list.

Phishing schemes ranked third on the 2006 list. Phishing continues, even today, to be one of the most common types of fraud. Identity thieves, in order to acquire personal and financial information, often use this scheme. In many cases, fraudsters pose as employees of financial institutions or the IRS. Phishing emails often appear as they originated from the taxpayer's bank or the IRS. Some schemes advise the taxpayer that he/she is deemed to owe significant taxes, which must be paid immediately. Hence, bank account information is demanded in order to make immediate payment. The IRS reminded taxpayers in the 2006 Dirty Dozen list that it never uses emails to contact taxpayers regarding tax liabilities owed.

The 2007 Dirty Dozen list was published on February 20, 2007 (IRS, 2007). The IRS highlighted five new frauds for 2007. These included telephone excise tax refund fraud, Roth IRA fraud, and frauds involving the American Indian Employment Credit, domestic shell corporations, and structured entities. Others on the list included phishing schemes, zero wages, return preparer fraud, trust misuse, abuse of charitable organizations and deductions, Form 843 tax abatement fraud, and, finally, frivolous arguments.

The abuse of telephone excise tax refunds is the first fraud highlighted by the IRS on IR-2007-37. The IRS discovered that some tax preparers and taxpayers were requesting refunds of the entire amount of excise taxes on the taxpayer's phone bills. Only the 3% excise tax on long distance and bundled services was legitimately refundable. The IRS stated that it would take prompt action against taxpayers and tax preparers who requested excessive excise tax refunds.

A second fraud highlighted in 2007 involved abusive Roth IRAs. Taxpayers, often aided by tax preparers, were transferring under-valued assets to a Roth IRA. This scheme allowed taxpayers to circumvent the annual maximum contribution limit, which allowed taxable income to go untaxed.

The third fraud highlighted by the IRS in 2007 involves the misuse of the American Indian Employment Credit by employees. This credit does exist, but it is available for businesses that employ Native Americans or their spouses. The credit is not available for use by employees. In a similar scheme, unscrupulous tax advisors/promoters advise Native American taxpayers to file Form W-8 BEN requesting relief from all withholding of federal income taxes. Carefully reading this form clearly shows that this document is not intended for this purpose.

The fourth highlighted fraud from 2007 involves disguised corporate ownership. The IRS states, "Domestic shell corporations and other entities are being formed and operated in certain states for the purpose of disguising the ownership of the business or financial activity" (IRS, 2007, 1). The IRS advises that these shell corporations (anonymous entities) are being used for a number of illegal purposes such as underreporting of income, non-filing of tax returns, money laundering, financial crimes, and even possible terrorist financing.

The final highlighted fraud by the IRS in 2007 involves structured entity credits. This fraud involves promoters who create partnerships to own and sell state conservation easement credits, federal rehabilitation credits, and other federal credits. These phantom credits are the only assets owned by the partnership. Once these credits are used, the investor receives a K-1 form indicating that his/her investment is a total loss. The IRS emphasizes that these partnerships have no valid business purpose. Since the investments are not valid, any related losses from them are not deductible. These five items are new to the Dirty Dozen list for 2007 and were highlighted by the IRS.

The 2008 Dirty Dozen list was published on March 13, 2008 (IRS, 2008). IR-2008-41 includes a warning to taxpayers from acting IRS Commissioner Linda Stiff (IRS, 2008). Stiff reports that, "There is no secret formula that can eliminate a person's tax obligations. People should be wary of anyone peddling any of these scams." The 2008 list contains the following twelve items phishing frauds, scams related to the Economic Stimulus Payment, frivolous arguments, fuel tax credit

scams, hiding income offshore, abusive retirement plans, zero wages, false claims for refund and requests for abatement, return preparer fraud, disguised corporate ownership, misuse of trusts, and abuse of charitable organizations and deductions.

Two swindles from the 2008 list were emphasized in news release IR-2008-41. These were phishing schemes and frivolous tax arguments. Phishing was the first item on the 2008 list. Phishing schemes include various Internet ploys in order to steal personal financial information from taxpayers. Phishing schemes are limited only by the imagination of the fraudster. These schemes often take the form of an e-mail that appears to come from a legitimate source including portions of the legitimate firm's website that have been cut and pasted into the phishing email. This often includes the company's logo or trademark.

Phishing frauds come on all sizes, shapes, and colors. IR-2008-42 states that, "To date, taxpayers have forwarded more than 33,000 of these scam e-mails, reflecting more than 1,500 different schemes to the IRS (IRS, 2008, 1). Once the fraudster has acquired the personal financial information of the taxpayer, the criminals empty the taxpayer's bank accounts, run up credit card charges, and even apply for loans and credit in the victim taxpayer's names. The IRS reminds taxpayers that it never uses e-mail to inquire about a tax issue.

The second fraud highlighted by the IRS in 2008 is frivolous tax arguments made by the taxpayer. The IRS website contains a wealth of frivolous arguments made by taxpayers in past years (IRS, 2022). Some of the commonly used frivolous arguments include:

1. The filing of a tax return is voluntary.
2. Payment of Federal Income Tax is voluntary.
3. Taxpayers can reduce their federal income tax liability by filing a "zero return."
4. The IRS must prepare federal tax returns for a person who fails to file.
5. Compliance with an administrative summons issued by the IRS is voluntary.
6. Wages, tips, and other compensation received for personal services are not income.
7. Only foreign-source income is taxable.

The IRS advises taxpayers that anyone filing a tax return based on any of these inaccurate positions is subject to a $5,000 penalty. There are numerous court cases and IRS pronouncements that debunk each of these arguments. For example, the contention that filing a tax return is voluntary is refuted in court cases such as *United States v. Tedder*, 787 F.2d 540, 542 (10th Cir. 1986) and in IRS publications such as Rev. Rul. 2007-20, 2007-1 C.B. 863 and in Notice 2010-33, 2010-17 I.R.B. 609. Given all the documentation to the contrary, taxpayers continue to use these ridiculous contentions when filing or not filing returns today.

IRS News Release 2009-41 contained the Dirty Dozen list for 2009 (IRS, 2009). The 2009 list contained items that had been included on previous Dirty Dozen lists. The identified frauds included phishing schemes, hiding income offshore scams, filing false or misleading forms, abuse of charitable organizations and deductions, return preparer frauds, frivolous arguments, false claims for refund and requests for abatement, abusive retirement plans, disguised corporate ownership, zero wages scams, misuse of trusts, and fuel tax credit scams.

This 2009 News Release also informed tax preparers and taxpayers of the process to follow in reporting suspected tax frauds. This involves the use of Form 3949-A, Information Referral. This form contains three major sections, which are information about the person or business you are reporting, describe the alleged violation of income tax law, and information about yourself. The IRS advises taxpayers that the identity of the person filing this report can be kept confidential.

A final comment on Form 3949 is that it contains a lengthy list of violations of the tax law. A few items from Section B of the form are false exemptions, false deductions, multiple filings, organized crime, unreported income, kickbacks, failure to file returns and/or pay taxes, and false/altered documents. The back page of Form 3949-A contains specific instructions for completing the form along with definitions of various types of tax law violations.

The 2010 Dirty Dozen was issued by the IRS on March 16, 2010 (IRS, 2010). This list contained many common frauds from past years including return preparer fraud, hiding income offshore, phishing, filing false or misleading forms, nontaxable Social Security Benefits with exaggerated withholding credit, abuse of charitable organizations and deductions, frivolous arguments, abusive retirement plans, disguised corporate ownership, zero wages misuse of trusts, and fuel tax credit scams.

Each of these frauds were discussed, at least briefly, in previous Dirty Dozen lists. One item deserving comment here is the fraud involving Social Security receipts. The fifth fraud on the 2010 list identified taxpayers reporting nontaxable Social Security Benefits with exaggerated amounts of Federal Income Taxes. In this situation, typically both the reportable income amount and the taxes withheld amount are incorrect. The IRS advises taxpayers who attempt to perpetrate this fraud are subject to a penalty of up to $5,000. The next portion of this paper reviews the Dirty Dozen lists from the years 2011 through 2019.

DIRTY DOZEN LISTS - 2011-2019

IR-2011-39 issued on April 7, 2011 included the list of Dirty Dozen frauds for the year. Again, most of these scams were included on prior Dirty Dozen lists. The major frauds for 2011 were hiding income offshore, identity theft and phishing, return preparer fraud, filing false or misleading forms, frivolous arguments, nontaxable social security benefits with exaggerated withholding credits, abuse of charitable organizations and deductions, abusive retirement plans, disguised corporate ownership, zero wages, misuse of trusts, and fuel tax credits scams.

An interesting change from prior years is that the second item in this year's Dirty Dozen combined identity theft and phishing. The IRS defines identity theft as the use of personal financial information of an unsuspecting individual. This includes names, addresses, social security numbers, banking information, etc. Phishing is a method used by fraudsters to trick unsuspecting individuals into revealing various personal information. This is normally accomplished with phony e-mails or websites. Any taxpayer who believes he/she is a victim of identity theft should call the IRS Identity Protection Specialized Unit at 1-800-908-4490.

The 2012 Dirty Dozen List was issued on February 16, 2012 (IRS, 2012). IRS Commissioner Doug Shulman stated, "Taxpayers should be careful and avoid falling into a trap with the Dirty Dozen." Two common frauds that were combined in the 2011 list are separated in the 2012 list. The top 12 frauds for this year are identity theft, phishing, return preparer fraud, hiding income offshore, "Free Money" from the IRS & tax scams involving social security, false/inflated income and expenses, false Form 1099 refund claims, frivolous arguments, falsely claiming zero wages, abuse of charitable organizations and deductions, disguised corporate ownership, and misuse of trusts. Most of these frauds have been on previous year's lists.

One item that deserves mention here is the "Free Money' scam (5th on the list). The IRS states that flyers and advertisements for free money from the IRS were appearing in community churches around the country. These flyers advised taxpayers that he/she could file tax returns with little or no documentation and receive a refund from the IRS. Unfortunately, these schemes often spread by word of mouth to unsuspecting and well-intentioned people who spread the story to friends and relatives. These scammers often preyed on the elderly and lower income less educated taxpayers. In addition, fraudsters have devised tax scams involving Social Security. Typically, these involve non-existent Social Security refunds or rebates. The IRS advises taxpayers that falling for such schemes could result in a $5,000 penalty.

The Dirty Dozen list for 2013 was issued on March 26, 2013 (IRS, 2013). The 12 frauds for this year include identity theft, phishing, return preparer fraud, hiding income offshore, "Free Money" from the IRS & tax scams involving Social Security, impersonation of charitable organizations, false/inflated income and expenses, false Form 1099 refund claims, frivolous arguments, falsely claiming zero wages, disguised corporate ownership, and misuse of trusts. Again, the majority of these items have been on Dirty Dozen lists in past years. Two of these items that deserve further comment are impersonating charitable organizations and false Form 1099 refund claims.

First, impersonating charitable organizations becomes a common fraud in any year that major natural disasters occur. Following these natural disasters, scammers impersonate charities to get money from well-intentioned taxpayers who assume they are donating to a legitimate charity. Scammers operating bogus charities may even directly contact disaster victims by telephone or email to solicit money and/or financial information. The IRS advises taxpayers to be cautious of charities with names that are similar to national well-known charities. In addition, the IRS advises taxpayers to make all charitable contributions by check or credit card and not by cash in order to generate a paper trail.

A second fraud from 2013 that deserves mentioning is the false Form 1099 refund claims. This fraud is based on the bogus theory that the federal government maintains secret accounts for U.S. citizens. The theory further states that taxpayers can gain access to these accounts by issuing 1099-OID forms to the IRS. The fraud continues with the fraudster filing a false refund claim on a corresponding tax return. The IRS warns that falling for tax frauds that take advantage of deductions or credits that the taxpayer is not allowed may subject the taxpayer to financial penalties or even criminal prosecution.

The 2014 Dirty Dozen was published on February 19, 2014 (IRS, 2014). IRS Commissioner, John Koskinen, stated, "Taxpayers should be on the lookout for tax scams using the IRS name." Koskinen adds that fraud swindles increase significantly every year at tax filing time. In addition, the Commissioner advised taxpayers that the IRS Criminal Investigation division works closely with the Department of Justice (DOJ) to eliminate frauds and prosecute the fraudsters operating them.

The 2014 list contains many items found on previous Dirty Dozen lists. The twelve frauds on the 2014 list were identity theft, pervasive telephone scams, phishing, false promises of "Free Money" from inflated refunds, return preparer fraud, hiding income offshore, impersonation of charitable organizations, false income, expenses or exemptions, frivolous arguments, falsely claiming zero wages or using false Form 1099, abusive tax structures, and misuse of trusts.

The second fraud on the 2014 list is pervasive telephone frauds. The IRS reports an increase in local phone swindles across the country from individuals impersonating IRS agents in the hopes of stealing personal financial information. These telephone frauds come in many forms. One common form of telephone fraud is when the fraudster threatens arrest or revocation of the taxpayers' driver's license. The initial calls are often followed by calls from other fraudsters who claim to be the local police department or the state's DMV. This combination of phone calls increases the legitimacy of the fraud and improves the fraudster's success. This News Release also listed a number of characteristics of these common telephone scams such as the fraudsters using fake names and IRS badge numbers.

The Dirty Dozen frauds for 2015, for the first time ever, were published over a 12-day period from January 22 to February 6 (IRS, 2015). Each of these frauds were common to frauds on prior year lists. The 2015 top frauds were phone scams, phishing, identity theft, return preparer fraud, offshore tax avoidance, inflated refund claims, fake charities, hiding income with fake documents, abusive tax shelters, falsifying income to claim credits, excessive claims for fuel tax credits, and frivolous tax arguments.

Phone scams, listed first on the 2015 Dirty Dozen list, came with a warning from the IRS that aggressive telephone swindles were continuing across the country. The IRS advised taxpayers to not give out money or personal financial information related to emails or phone calls from individuals claiming to be from the IRS. 2015 was the first year that the IRS set up a special section on the IRS.gov website in order to emphasize the importance of these frauds to all taxpayers.

2016 was the second year that the IRS presented its Dirty Dozen list in separate new releases over 12 business days (IRS, 2016). The 2016 list contained frauds that were common in past years. For example, the top three scams for the year were identity theft, phone scams, and phishing schemes. The rest of the list for the year was return preparer fraud, offshore tax avoidance, inflated refund claims, fake charities, falsely padding deductions on returns, excessive claims for business credits, falsifying income to claim credits, abusive tax shelters, and frivolous tax arguments.

IRS Commissioner, John Koskinen, stated, “We are working hard to protect taxpayers from identity theft and other scams this filing season.” He adds that taxpayers have rights and should not feel forced into providing personal financial information or cash because of a phone call or email from an unknown party claiming to be from the IRS. In the previous news release, the IRS issued a consumer alert (IR-201-28) for a variety of e-mail schemes due to a dramatic 400 percent increase in phishing and malware incidents this tax season (IRS, 2016).

These emails were intended to trick taxpayers into thinking they were official communications from the IRS or others in the tax industry, including tax software companies. These phishing schemes often ask taxpayers about a wide range of financial topics. E-mails typically seek information related to refunds, filing status, confirming personal information, ordering transcripts, and verifying PIN information. This news release reported the following increases in phishing and malware schemes including:

- In 2016, 1,026 incidents were reported in January, up from 254 from a year earlier.
- The trend continued in February, nearly doubling the reported number of incidents compared to a year ago. In all, 363 incidents were reported from Feb. 1-16, compared to the 201 incidents reported for the entire month of February 2015.
- To date in 2016, 1,389 incidents reported have already topped the 2014 yearly total of 1,361, and they are halfway to matching the 2015 total of 2,748.

Clearly, these frauds were on the increase during the 2016 tax filing season.

News Release #37 from 2017 summarized the dirty dozen list for the year (IRS, 2017). This was the third year that the IRS published the Dirty Dozen in separate releases over 12 business days. The frauds on this list are again similar to those published in past years. The list included phishing, phone scams, identity theft, return preparer fraud, fake charities, inflated refund claims, excessive claims for business credits, falsely padding deductions on returns, falsifying income to claim credits, abusive tax shelters, frivolous tax arguments, and offshore tax avoidance.
Phishing schemes remained at the top of the Dirty Dozen list due to their frequency and variety. Especially troublesome are emails from individuals claiming to be agents of the IRS.

The 2018 Dirty Dozen frauds were again released in 12 separate news releases beginning with IR-2008-39 and ending with IR-2008-64 (IRS, 2018). Again, the frauds were similar to past years although the rankings differ depending on the frequency of the swindle that year. Phishing frauds topped the list again in 2018. The complete list was phishing, phone scams, identity theft, return preparer fraud, fake charities, inflated refund claims, excessive claims for business credits, falsely padding deductions on returns, falsifying income to claim credits, frivolous tax arguments, abusive tax shelters, and offshore tax avoidance. The three most common and significant frauds continue to be phishing frauds, phone scams, and identity theft schemes.

The IRS again presented the Dirty Dozen frauds in separate news releases over 12 weekdays. The summary news release concerning the Dirty Dozen frauds was issued on March 20, 2019 (IRS,

2019). The ranking of these frauds was similar to prior years for the top few items. For example, the top four frauds for 2019 were the same as the 2018 list. These items were phishing frauds, phone scams, identity theft schemes, and return preparer fraud.

The full 2019 list was phishing, phone scams, identity theft, return preparer fraud, inflated refund claims, falsifying income to claim credits, falsely padding deductions on returns, fake charities, excessive claims for business credits, offshore tax avoidance, frivolous tax arguments, and abusive tax shelters. One of the frauds that dropped in ranking was fake charities that moved from #5 to #8. Conversely, offshore tax avoidance increased in ranking moving up from #12 to #10. Although the Dirty Dozen frauds have been quite similar in the past few years, the 2020 list includes unique frauds resulting from the Covid-19 pandemic.

DIRTY DOZEN LISTS (Pandemic ERA) - 2020-2023

The frauds during the pandemic years of 2020 through 2022 are somewhat different from those of the past several years due to the pandemic environment and government legislation enacted during this period. Fraudsters typically develop schemes that prey upon the government funds intended for needy taxpayers. For example, the Paycheck Protection Program (PPP) payments spawned numerous frauds, which are discussed the following section of this paper.

The 2020 Dirty Dozen frauds were published in IRS News Release 160 published on July 16, 2020 (IRS, 2020). The IRS announced that this list of tax frauds had a special emphasis on aggressive and evolving schemes related to coronavirus tax relief, including the new Economic Income Payments. This year's Dirty Dozen focused on schemes that target taxpayers. Fraudsters who create these bogus schemes believe that all taxpayers are potentially easy prey.

IRS Commissioner Chuck Rettig said, "The IRS provides the Dirty Dozen list to help raise awareness about common scams that fraudsters use to target people." Rettig added that the IRS is doing its part to protect Americans. The service will actively pursue criminals attempting to steal taxpayer money and/or personal financial information (IRS, 2020).

The 2020 list included phishing, fake charities, threatening impersonator phone calls, social media scams, EIP or refund theft, senior fraud, scams targeting non-English speakers, unscrupulous return preparers, offer in compromise mills, fake payments with refund demands, payroll and HR scams, and ransomware. This list is significantly different from prior-pandemic years. For example, although phishing frauds were common in past lists, this year the scams used pandemic keywords such as "coronavirus," "COVID-19," and "Stimulus" (IRS, 2020). IRS Criminal Investigation (IRS-CI) reported a huge increase in phishing schemes using emails, letters, texts, and links. IRS-CI also stated that these new schemes played on the fear of the new virus and the unknown requirements needed to receive the new stimulus payments. This was all the encouragement the fraudsters needed to send out email blasts to thousands of taxpayers.

Threatening impersonator phone call were listed third in 2020. The scenario was similar to prior years with the fraudster posing as an IRS agent. These phone scams or "vishing" (voice phishing) were becoming more common with the advent of the pandemic. The fraudster often threatens arrest, deportation, or license revocation if the fraud victim does not pay a bogus tax bill. These calls often took the form of a "robocall" (a text-to-speech recorded message with instructions for returning the call) (IRS, 2020).

The fourth fraud on the 2020 list is social media fraud, which is new to the Dirty Dozen lists. The IRS advises taxpayers to be aware of social media frauds, which are often triggered by environmental events like the COVID-19 epidemic. Since social media sites allow taxpayers to share personal information with anyone else on the Internet, fraudsters often impersonate a family member, friend, or co-worker in order to gather desired personal information. The critical requirement in a social media scam is the ability of the fraudster to convince the victim that he or she is dealing with a known family member or co-worker (IRS, 2020). Once the fraudster acquires the necessary personal financial information from the social media sites, a wide variety of frauds may be orchestrated.

The fifth fraud on the 2020 list is unique resulting from government legislation during the pandemic. It is Economic Impact Payments (EIP) or refund theft. In past years, fraudsters have attempted to steal taxpayer's federal income tax refunds using a variety of schemes. Fraudsters this year devised schemes to steal taxpayer refunds of the newly created Economic Income Payments. These payments are a result of the passage of the Coronavirus Aid, Relief, and Economic Security (CARES) Act. These payments were substantial with payments of up to $1,200 for single taxpayers and $2,400 for married filing joint taxpayers. In addition, there were EIP payments of $500 for each dependent child under the age of 17 (IRS, 2020).

Also worth mentioning is that the IRS warned nursing homes and other senior care facilities that these EIP payments belong to the recipient and not to the facilities or organizations that were providing the care. This followed taxpayer complaints that some care facilities were not turning over the EIP checks to the taxpayers. In addition, the IRS stated that these payments were not to be included in the taxpayer's calculation of Medicare eligibility (IRS, 2020). Finally, the IRS announced the publishing of a "Coronavirus Tax Relief Page" on the IRS.gov website. This page provided taxpayers with a wealth of information concerning newly enacted government payment programs and potential frauds that have resulted from this legislation.

Senior frauds and frauds against non-English speaking individuals appeared again after an absence of several years. IRS impersonators and other scammers threaten individuals with little command of English by threatening arrest, deportation, confiscation of driver's license, and various other sanctions and penalties. These fraudsters often have limited personal information such as name, address, and the last four digits of a social security number. With at least some correct personal financial information, the calls appear to be legitimate to many individuals. This is especially true for recent immigrants to the United States who often fall victim to frauds such as these. These are the major changes to the Dirty Dozen list for 2020.

Moving to 2021, the pandemic had a significant influence on the Dirty Dozen list as the pandemic continued into its second year. The IRS decided to publish the 2021 Dirty Dozen list in four separated categories including:

- Pandemic related scams
- Personal information cons
- Ruses focusing on unsuspecting victims, and
- Schemes that persuade taxpayers into unscrupulous actions.

The agency created this list based on who perpetrated the fraud and who was impacted by the fraud.

The pandemic related frauds include the theft of Economic Impact Payments (EIP) (IRS, 2021). IRS Commissioner, Chuck Rettig, stated, "We continue to see scam artists use the pandemic to steal money and information from honest taxpayers in a time of crisis" (IRS, 2021, 1). EIP theft took many forms. Therefore, the IRS informed taxpayers that "any text messages, random incoming phone calls or emails inquiring about bank account information….should be considered suspicious and deleted without opening." The IRS also warned taxpayers about mailbox fraud as fraudsters might steal an EIP check from the taxpayer's mailbox given the opportunity.

Rettig advised taxpayers not to fall for any of the numerous EIP frauds of the period. He further stated, "the IRS won't initiate contact by phone, email, text, or social media asking for Social Security numbers or other personal information related to Economic Income Payments" (IRS, 2021, 1).

Another pandemic fraud, discussed in IR-2021-135, is unemployment fraud leading to inaccurate taxpayer 1099-G's. Since many taxpayers lost his/her jobs during the pandemic, it was typical for these out of work individuals to receive unemployment compensation. Fraudsters, during the pandemic, filed fraudulent claims for unemployment compensation using stolen personal information of taxpayers who had not filed claims. Therefore, the identity thieves collected payments made on these fraudulent claims. Based on this swindle, the IRS reminded taxpayers, who received a Form 1099-G for unemployment compensation that he/she never received, to contact the appropriate state agency to acquire a corrected form.

On June 28, 2021, IR-2021-137 itemized frauds classified as personal information cons (IRS, 2021). These include phishing, ransomware, and phone "vishing." The IRS reminds taxpayers that tax related phishing frauds were continuing in many new variations. Fraudsters use an arsenal of fake emails, text messages, websites, and social media in their attempt to steal personal financial information. Phishing frauds increase significantly during the tax filing season. In particular, some of these new phishing swindles were aimed at tax professionals.

In particular, tax professionals are targeted by scams involving verification of Electronic Filing Identification Numbers (EFIN) and Centralized Authorization File (CAF) numbers. One common such fraud used a subject line "IRS Tax E-Filing." IR-2021-137 also described a "New Client"

fraud commonly encountered by tax professionals. The email message took a form such as this. “I just moved here from Michigan. I have an urgent tax issue and I was hoping that you could help” (IRS, 2021, 1). These schemes typically have one or two attachments described as IRS Notice, previous year’s tax return, or similar item. This scam is so common that the IRS advises tax preparers to not open any attachments or click on any links found in emails from unknown individuals.

A final personal information con takes the form of impersonator phone calls often termed “vishing” (voice related phishing). These scams increase during the pandemic years. IR-2021-137 reported that in 2020, approximately 400 vishing schemes were reported which was a 14% increase from 2019. On a positive note, the IRS has experienced a 43% drop in the number of calls claiming to come from the IRS with 36,000 reported in 2019 and only 20,500 in 2020. In addition, the Federal Trade Commission (FTC) reported a decrease of 67% in a similar fraud related to their site with reports dropping from 7,684 in 2019 to 2,571 in 2020. This news release also described the continuation of social media swindles and the increase in ransomware frauds.

The third installment of the 2021 Dirty Dozen was published on June 30, 2021 (IRS, 2021). This news release described five fraud areas including fake charities, immigrant/senior fraud, offer in compromise mills, unscrupulous tax return preparers, and unemployment insurance fraud. Fake charities are common during any type of disaster including the Covid-19 pandemic. Frauds requesting donations for victims are commonly committed with phone calls. The IRS advises taxpayers to not feel pressured though these calls, since a legitimate charity is happy to get a donation anytime with no time pressure.

IR-2021-141 describes immigrant/senior fraud as the second fraud in this news release. These IRS impersonators often target groups with limited proficiency in English such as new immigrants and some senior citizens. These frauds are often very threatening in nature suggesting jail time, deportation, or revocation of a driver’s license.

Offer in Compromise “mills” and unscrupulous tax return preparers are two additional frauds on the list for 2021. Scam artists promising taxpayers that they can settle an IRS tax debt for “pennies on the dollar” has been common in past years. These “mills” mislead taxpayers, who have little chance of being granted a reduction in his/her tax bill, into believing the scammer can help them. During this process, the taxpayer pays the fraudster an excessive fee, often into the thousands of dollars, and is then denied an Offer in Compromise with the IRS. Unscrupulous tax return preparers typically do not sign the tax return and disappear after tax season. These fraudsters are termed “Ghost Preparers.” It is also common for these “Ghost Preparers” to require payment in cash and give no receipt, claim false deductions to increase the size of the taxpayer’s refund, and even direct refunds into their own bank account, not the taxpayer’s account.

Finally, IR-2021-141 discusses unemployment insurance fraud. Unemployment fraud normally attempts to get state and local assistance payments for which they do not qualify. Some of the common versions of this fraud include identity-related fraud, employer-employee collusion fraud,

misrepresentation of income fraud, fictitious employer-employee fraud, and insider fraud. One of these that was somewhat common is employer-employee collusion fraud. In this scam, the employee receives unemployment compensation payments while the employer continues to pay the employee reduced, unreported wages. These frauds were quite common during the pandemic period.

The final news release from the 2021 Dirty Dozen list was published on July 1, 2021 (IRS, 2021). This includes a number of schemes, typically sold by promoters who offer hopes of large deductions from these abusive arrangements. Examples are syndicated conservation easements, abusive micro-captive arrangements, potentially abusive use of the US-Malta tax treaty, improper claims of business credits, and improper monetized installment sales. In an effort to curb these abusive arrangements, the IRS created a new Office of Promoter Investigations (OPI). This office concentrates on both the participants and promoters of these various abusive tax avoidance schemes.

Moving to 2022, Covid Tax Tip 2022-99 provided an overview of the Dirty Dozen for this year (IRS, 2022). The IRS issued the Dirty Dozen this year in five groups. These were potentially abusive arrangements, pandemic-related scams, offer in compromise "mills," suspicious communications, and spear phishing attacks. Most of these frauds have been discussed in past years so an emphasis on them is not made at this time. For example, the four abusive arrangement frauds are charitable remainder annuity trust frauds, Maltese individual retiring arrangements, foreign captive insurance scams, and monetized installment sales schemes.

The 2022 identified pandemic-related scams were Economic Impact Payment and tax refund scams, unemployment fraud leading to inaccurate taxpayer 1099-Gs, fake employment offers on social media, and fake charities that steal taxpayer's money. Offer in Compromise "mills" are again on the list. As mentioned earlier, fraudsters promised the taxpayer that they can get IRS debts settled for only pennies on the dollar. The IRS advises "the reality is that taxpayers pay the OIC mill a fee to get the same deal that they could have gotten on their own by directly working with the IRS" (IRS, 2022).

Suspicious communication frauds for 2022 included every form of suspicious communication designed to trick someone into reacting before thinking. The IRS emphasizes that these suspicious communications travel across four forms of communications: email, social media, telephone, and text messages. The goal of these scam artists is to retrieve personal financial information that can be used to file bogus tax returns and drain taxpayer's bank accounts.

A final fraud for 2022 is the use of spear phishing attacks. Spearphishing fraudsters pose as someone known to the taxpayer in an effort to legitimize the request for information. The IRS related a current spear phishing email that "used the IRS logo and a variety of subject lines such as 'Action Required: Your account has now been put on hold'" (IRS, 2022, 1). These emails contained links to various popular tax preparation software. However, clicking on these links prompts a request for tax preparer account credentials. The IRS advises all tax professionals be

aware of frauds such as these. Numerous IRS News Releases in 2022 provide more details on each of the frauds.

Moving to 2023, the IRS issued the Dirty Dozen in twelve news releases beginning on March 20 (IRS, 2023). Employee Retention Credit frauds were added to the Dirty Dozen list this year following blatant attempts by bogus promoters encouraging ineligible individuals to take the credit. IRS Commissioner, Danny Werfel, said "the aggressive marketing of these credits is deeply troubling and a major concern for the IRS." Werfel further stated that the IRS is actively auditing and conducting criminal investigations related to these false Employee Retention Credit claims.

The second Dirty Dozen news release was IR-2023-51 published on March 21, 2023. In this news release, the IRS warned taxpayers to watch out for fraudsters using text messages and email in an effort to deceive people during the tax filing season. The IRS reminds taxpayers that phishing involves emails sent by fraudsters who claim to represent the IRS or some other legitimate organization such as a state tax agency. Closely related frauds include smishing schemes where a text or smartphone SMS message in sent to potential victims instead of an email.

The third fraud in the 2023 list involves fraudsters who approach an unsuspecting person with an offer to set up an online account for the taxpayer on the IRS.gov website. IR-2023-54 issued on March 22, 2023. Commissioner Werfel warned taxpayers that scammers were offering help in setting up an "Online Account" which helps taxpayers view important details concerning their tax positions. If these identity thieves are successful, the fraudster often gains critical personal financial information.

Many of the remaining Dirty Dozen frauds were on previous year's lists. For example, the fourth item (IR-2023-55) concerned false fuel tax credit claims. The fifth fraud was the use of fake charities (IR-2023-57) by scammers in an effort to gain taxpayer funds. The sixth fraud on the 2023 list warned of unscrupulous tax preparers who appear every year during tax preparation season (IR-2023-59). The seventh fraud for 2023 is found in IR-2023-61 and warned of the danger of taking social media advice, which is often deceptive and misleading.

The eighth fraud for 2023 found in IR-2023-62 appeared in a March 29th News Release. It advised businesses and tax professionals to be aware of spearphishing frauds. Spearphishing communications appear to originate from a known person or organization. Using these prior relationships, the fraudster attempts to steal client data, tax software credentials, and tax preparer identifying information. The goal of the fraud is to generate fraudulent tax refunds. Commissioner Werfel added "The information these businesses have on their systems is extremely valuable to an identity thief looking to steal identities and file fraudulent tax returns" (IRS, 2023, 1).

The final 2023 Dirty Dozen items are Offers in Compromise "mills" (IR-2023-63), schemes aimed at high-income taxpayers such as Charitable Remainder Trust frauds (IR-2023-65), abusive tax avoidance schemes (IR-2023-67), and the reminder that scams and fraud schemes continue after tax season (IR-2023-71). IRS Commissioner stated, "Scammers are coming up with new ways all

the time to try to steal information from taxpayers. People should be wary and avoid sharing sensitive personal data over the phone, email, or social media to avoid getting caught up in these scams" (IRS, 2023, 1).

This completes our review of the IRS Dirty Dozen frauds from the original list published in 2002 to the most recent list of 2023. For over twenty years, the IRS has attempted to inform taxpayers of the most common and significant frauds of that year. A review of these 21 annual lists (2002-2023) shows a wide variety of frauds over this period. Indeed, the frauds came in all shapes and sizes. The frauds on the annual lists evolved as disasters and world catastrophes, like the pandemic, occurred. Government programs and resulting payments generated a wide range of frauds with the scammers attempting to divert these payments from needy taxpayers to themselves. Astute taxpayers study the annual Dirty Dozen lists to ensure that he/she does not fall victim to these worst-of-the-worst frauds.

SUMMARY/CONCLUSIONS

A final piece of information that is appropriate to add as a conclusion to this paper is the estimate of the extent of fraud losses during the COVID pandemic. According to the Criminal Investigation (CI) Unit of the IRS, the unit investigated "975 tax and money laundering cases related to COVID fraud totaling $3.2 billion dollars" (IRS-CI, 2023, 1). The IRS-CI reports that these cases included a wide range of criminal activity, including fraudulently obtained loans, credits and payments meant for American workers, families, and small businesses. The IRS-CI reported that 236 individuals were sentenced to an average of 37 months in federal prison. Finally, CI reported a nearly 100% conviction rate in all prosecuted cases. The IRS-CI is the criminal investigation arm of the IRS. The unit is responsible for conducting financial crime investigations, including tax fraud, narcotics trafficking, money-laundering, public corruption, healthcare fraud, identity theft and many more.

A review of the 22 years of Dirty Dozen lists provide evidence that the most common frauds for a given year depend on the events of that year such as natural disasters and governmental legislation. Any event that generated government legislation that provided payments to taxpayers brings out the creative fraudsters. There are many similarities in these frauds such as identity theft. From year to year, the structure and details of the identity theft swindles are often radically different in order to deceive victims, especially the elderly and less educated.

The two most commonly found frauds over these 21 years are phishing schemes and identity theft scams. These frauds exist in such a wide variety that it is difficult for taxpayers to guard against them. In addition, frauds are delivered to potential victims in many formats including email, text messages, telephone calls, regular mail, and others. The goal of these frauds is to acquire personal financial information that is used to commit a wide variety of swindles including removing funds from the taxpayer's bank accounts.

A third fraud that was common to many of the 21 Dirty Dozen lists was tax return preparer fraud. The IRS annually warns taxpayers to select an honest and ethical tax return preparer. Every tax season, unscrupulous preparers appear promising tax refunds that are too good to be true. Creating bogus exclusions, deductions, and tax credits, these fraudulent preparers create huge refunds for the unsuspecting victims. These taxpayers later discover that he/she has been deceived and are liable for a large balance due along with penalties and interest on the underpayment.

Other frauds appeared multiple on the IRS Dirty Dozen lists, but these three are the most common. The Dirty Dozen list is a significant service provided by the IRS. Annually, no doubt, thousands of taxpayers have avoided financial loss due to his/her knowledge of these most typical frauds of the year. In the future, the Dirty Dozen list will continue to evolve given changes in the environment including natural disasters and governmental legislation. One thing for sure, these diverse frauds are only limited by the ingenuity of the fraudster. Indeed, the burden is on the taxpayer and tax preparer to be vigilant and not fall victim to any of these frauds.

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FROM TENURE TO TRIUMPH: HOW CEO TENURE AND ELITE BUSINESS SCHOOL MBAS INFLUENCE FINANCIAL PERFORMANCE METRICS

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ABSTRACT

This study aims to investigate the relationship between CEO tenure, MBA education—particularly from elite business schools—and the financial performance of S&P 500 companies. It seeks to determine whether long-serving CEOs with high-caliber educational backgrounds deliver superior corporate results. A cross-sectional study design was adopted, drawing on six years of financial performance data from Capital IQ. Key performance metrics—Gross Profit Margin, EBITDA Margin, Return on Assets (ROA), Return on Equity (ROE), and Year-Over-Year (YOY) net income growth—were analyzed. Descriptive statistics, Pearson's correlation coefficient, and multiple regression analysis were used to explore the influence of CEO tenure and MBA education on these financial outcomes. Data on CEO tenure and educational qualifications were sourced from corporate documents, official biographies, and public databases. The results indicate that longer CEO tenure is positively correlated with enhanced financial performance, with CEOs holding MBAs from elite business schools contributing even further to corporate success. The study underscores the role of accumulated organizational experience and advanced educational qualifications in driving efficiency and profitability in S&P 500 companies. This research contributes new insights into the combined impact of CEO tenure and elite educational background on company performance. It highlights the importance of not only experience but also the quality of education in delivering sustained corporate success, offering valuable lessons for leadership development and management training programs.

Keywords**:** CEO Tenure, MBA Education, Elite Business Schools, Financial Performance, Executive Education

INTRODUCTION

The area of concern in management subjects is primarily on CEO tenure and educational background, which affect the financial performance of corporations. As pointed out by Kalyta (2009), three factors make it possible to establish a complicated relationship between CEO tenure and enhanced financial performance since various factors are taken into consideration. At the same time, on one end, it is argued and observed that CEO with longer tenure is in a better position to understand their organizations, inclusive of the financial position, hence coming up with informed decisions aimed at improving the financial performance (Gupta & Mahakud, 2020). On the other hand, there are concerns of decreasing performance resulting from prolonged CEO tenure on the ground that the CEO loses their tactfulness and becomes rigid to change conducive to the corporation's ability to create new strategies and opportunities for growth in the existing markets (Pan et al., 2018). Therefore, the conceptualizations reached a purpose toward more pursuit of perpetual research about tenure in the management discipline.

The value of getting an MBA education has also attracted much attention in light of the evaluation of the effects of a CEO's educational background on the firm's performance (Copeland et al., 2000). This is because an MBA is widely assumed to be an enabler of efficient corporate leadership due to the set of skills

an MBA program inflicts on learners (Acemoglu et al., 2023). Still, recent scholars depart from the assumption that CEOs trained under MBA degrees perform better than their counterparts who lack such training. This is an issue of concern since various scholars have established that although an MBA provides analytical tools, better financial results cannot be achieved in situations where CEOs encounter real-life business situations (Bogan et al., 2018). In addition, Miller and Xu (2016) note that individuals who lead these firms and possess an MBA background care more about fee-based compensation, most often through adversarial methods like mergers and acquisitions that can increase their remunerations at the detriment to the overall health of the firms.

While there are varied outcomes on the impact of elite MBAs on CEO performance, the influence of these elites has been under analysis. Indeed, graduates from prestigious business schools are believed to add more value to their positions and have broader contact lists. At the same time, opinions could be more specific regarding actual financial results. Smith and Taylor (2020) pointed out that MBA holders may not have the aptitude to make a company achieve better performance in subsequent years despite getting higher remunerations and occupying strategic positions. This showcases that the elite MBA may fulfill a person's career paths but offers no guarantee of benefiting the financial report card of a company.

From the various opinions depicted above, it is evident that there is a need to establish the relationship between CEO, tenure, MBA education, and financial performance in Fortune 500 firms. In this regard, the current study was aimed at uncovering key financial performances. Exploring the basic financial indicators will help in recognizing the role of a long-serving CEO with an MBA degree from one of the top business schools on financial outcomes. Further, this study will also examine the presence of several contingency variables, including the age of the corporate, to establish the circumstances under which an MBA enhances the status of competitiveness (Pan et al., 2018).

LITERATURE REVIEW

The processes initiated by CEOs regarding the financial performance of a company are well established, but the link between the firms' CEOs' tenure and performance has been a subject of disagreement, with the research coming up with contradicting findings. Pillay (2010) did a study to establish the relationship between CEO tenure and financial performance with respect to performance indicators like ROA and ROE. When the scholar compared results based on CEOs' medium to long tenure with the firms and those with shorter tenure, results indicated that firms with CEOs of medium to long tenure posted better results in terms of ROA than their counterparts, yet no positive correlation was observed in the case of ROE (Pillay, 2010). This implies that even though the long-term tenure of the CEO may have a positive relationship on the firm's performance as captured by the ROA, the relationship may not be a monotonically increasing one and may start declining beyond a certain point.

In research done in 1991, Danny Miller expounded more on the idea of CEO tenure especially on how it influenced the strategic fit of a firm. The hypotheses of Miller were in line with those of Katz (1982), which assumed that increased CEO tenure is likely to result in a misfit of the firm to its environment that would reduce the levels of performance. According to Miller's findings, there is a tendency for CEOs to increasingly consolidate power when they are in office for longer durations of time and are likely to put in place other officials who have the same ideas as them. This closed leadership behavior resulted in organizational rigidity and lack of ability to address new conditions, hence deteriorating performance (Miller & Xu, 2016). Miller cumulatively opined that CEOs who have been in their positions for long developed complacency since they used prior performances to influence them, rendering their decision-making process unprepared for reorientation. This study, therefore, ascertains that while medium tenure offers CEOs adequacy to understand the business and enough time to effect change, long tenure is counterproductive because it isolates the business from the environment.

The above findings are consistent with other works like Allgood and Farrell (2003); and Kaplan and Minton (2006) which also post that medium turnover is most effective for CEOs as it favors firm performance more

than short or long-term turnovers, particularly within industries that require quick changes constantly. Henderson, Miller, and Hambrick (2006) carried out additional research that supports the idea that shorter tenures might be well suited in the context of rapid environment dynamics. Their study analyzed CEO tenure within various industries and special reference to the food and computer industries. They found out that in dynamic environments, like the computer industry, there is a high likelihood for learning and performance to improve in the early years of the CEO's leadership and then start to decline after that. On the other hand, as the tenure increases, the financial performance in industries like the food industry generally enhances with a decline in the performance after specific years. Such results suggest that it is crucial to adapt the duration of CEOs' tenures on the post to industry characteristics: shorter in the case of increased volatilities and longer in stable conditions.

Apart from the impact of tenure, much controversy has been brought out by the MBA education relationship with the CEO performance, and the findings are inconclusive. Some scholars have argued that MBA programs provide the necessary skills that are required for leaders to perform their roles at the executive level. In contrast, others opine that an MBA degree only sometimes leads to improved corporate leadership. Kefford (2022) noted that a considerable number of the world's CEOs, including many from the United States, possess MBA degrees; this shows that such programs are effective in developing people for managerial positions. Kefford also put forward that the MBA program offers core business competencies, leadership, and other experiences that are essential to CEOs. Still, it is worth noting that there are people who share a similar positive attitude towards MBA education.

For instance, Acemoglu, He, and Le Maire (2023) described a somewhat different effect of MBA training on the performance of CEOs. In fact, according to their research, they did not identify substantial proof that MBA-trained CEOs have benefits over non-MBA-trained CEOs when it comes to enhancing critical economic values like sales, productivity, investment, and exportation. Evidently, this study notes that arguably the biggest effect of having CEOs with an MBA education is a reduction in wages as well as the proportion of revenues provided to labor. This is an indication that MBA-trained CEOs tend to focus more on shareholder gains as opposed to the well-being of their employees. This factor gives more concern about the impacts of MBA training in the current organizations in terms of corporate governance and social responsibility.

These elements identified by Miller and Xu (2016) also offered additional information about the unfavorable side of MBA education for CEOs. Using a sample of 444 defused CEOs in the largest U. S. firms, they examined whether these CEOs took actions that appeared self-interested and both enhanced their position at the firm and negatively affected the firm in the long term if they had an MBA. In particular, it was found that these CEOs tended to adopt more risky growth strategies which included acquisitions, and hence offering poorer long-term returns and better remuneration for themselves. This pattern indicates that MBA programmers might develop a culture of short-termism in lieu of long-run growth, which harms the firm.

Marcos (2022) further contributed to the discords, stating that the old-style MBA which once was deemed mandatory to get to the position of a CEO, is not needed anymore. He also pointed out the other forms of obtaining business knowledge, including through a tutor, online, and with the help of colleagues. These alternatives provide flexibility and real-time solutions, which are likely to be closer to the typical experienced by a business person as compared to the conceptual approach often seen in MBA degrees. Similarly, Marcos' critique is that the changed environment and the emergence of new forms of doing business may need less theory-oriented and more practical training than MBA curriculums offer.

Ibarra and Hansen (2010), on the same note, sought to find out if an MBA was more valuable in the past than at present, courtesy of generational disparities among CEOs. Comparing the results they concluded that younger CEOs, those less than 50 years old, who took their MBA before the year 2000 did better than the others. This finding means that possibly due to the changes that MBA programs have undergone in the recent past, advertising, and analytical and more technical, this body could have declined in its ability to

produce corporate leaders for today's complex organizations. Hence, according to Simplilearn (2024), the study entails important implications of the current usefulness of MBA programs in today's marketplace and whether current MBA graduates are being properly equipped to meet the challenges of modern executives.

MBA critics, including Mintzberg and Lampel, in their 2001 research, have listed criticism pointing to the fact that MBA programs are too theoretical as opposed to pragmatic administrational professions. These critics argue that while MBA graduates may be full of the bravado to make decisions, they simply need more capability to navigate through the day-to-day operations of a business. This criticism resonates with what Irwin (2022) found out, where companies with MBA-educated CEOs, as indicated in the companies under analysis, did not exhibit any relative improvements in revenue and productivity and where employment and wages were reduced. The results of this research imply that there is a need to reconsider the conventional MBA course offerings to fit present-day organizational leadership demands.

Rasmussen and Li (2019) provided moderate evidence for the value of reaping an elite MBA degree on corporate financial outcomes. Based on their study, persons with MBA degrees (those considered as elites of the business world) may do well, especially in some industries like healthcare and consumer staples, but are less valuable in industries like energy and material. Further, their work revealed that there is no significant relationship between firms' stock price returns and the perceived quality of the MBA program among these graduates (Rasmussen, & Hao Nan, 2019). This implies that the quality of the institution from where the CEO obtained his MBA may not be determinant as much as is traditionally considered.

Altogether, in the literature, CEO performance lies on a number of factors with special emphasis on tenure and MBA education. What remains clear, however, is that having a medium tenure and an MBA degree are often perceived to be positive but, in fact, depend on contexts and industries. The present study supplemented this ongoing literature twofold: first, by analyzing the relationship between CEO tenure and financial performance; second, by empirically testing the aforementioned moderating variables of having an MBA and, more particularly, from prestigious institutions. This approach intended to present a clearer picture of how these factors mix up to affect corporate performance and leadership efficacy.

METHODOLOGY

This research used quantitative research design to examine the influence of CEO tenure, education level, and firm's financial performance of 500 Fortune companies. The approach used herein involved obtaining financial information from Capital IQ regarding the past six years with an emphasis on variables such as ROA, ROE, Gross Profit Margin, EBITDA Margin, and Net Income YOY Growth. The study standardized a six-year dataset for each of the metrics using the statistical software SPSS, which helped in controlling for factors like the economic effect of COVID-19 and enabled more accurate trends by summing up the results for more extended periods.

Likewise, some specific characteristics of CEOs, like their tenures of service and education level, were attained from the company websites or other reputed sources like Forbes and Wall Street Journal most carefully and cautiously. As a measure of relationship and with the age of the corporate entity as a covariate, the SPSS was used in correlation and regression analysis. This approach helped in establishing the validity of the results where the effects of the CEO attributes on the financial performance without undue influence by company age or vice versa was established. Thus, by employing these quantitative methods, the study intended to give a statistically sound vision of the influence of leadership characteristics on the success of the corporation.

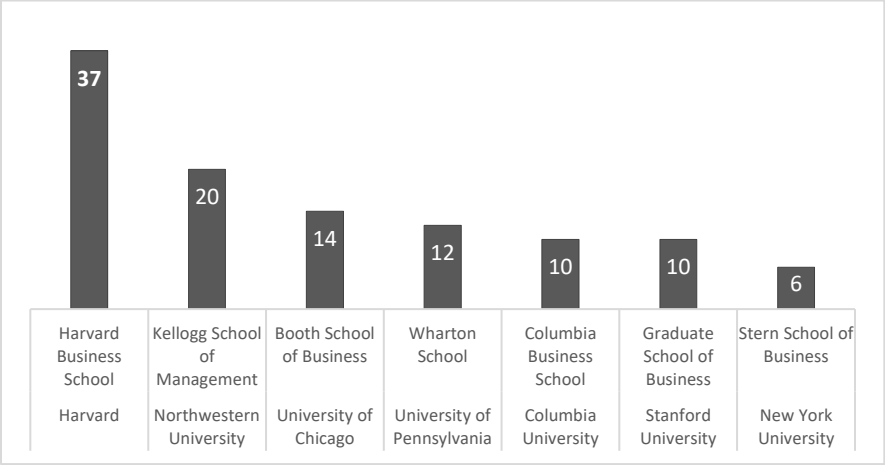
DATA COLLECTION

In the present study, Fortune 500 companies were selected because these are the most prominent companies from different fields that offer a good sample of companies for comparing financial performance and leadership traits. The Fortune 500 firms are acknowledged to represent good benchmarks of corporate

governance and financial results, thus making them suitable to analyze the influence of the characteristics of CEOs in organizational results (Miller, 1991). Also, it is identified that they have a consistent reporting system and a lot of public data available, making them a good resource for financial analysis.

For this purpose, the study gathered fresh data on financial performance indicators of the tenement, including Return on Assets (ROA), Return on Equity (ROE), Gross Profit Margin, EBITDA Margin, and Year-Over-Year (YOY) Net Income Growth from Capital IQ for the last six years only. In addition to the financial data, the study also compiled substantial information about the CEOs of these firms, such as their years of experience, education level and the university they graduated from. This information was gathered from the company's official website, press release format, or any other accredited source. Through the details, validation as well as completion of the study's dataset in relation to whether CEOs held an MBA or not, let alone coming from prestigious business schools were obtained. Figure I show the number of CEOs from elite business schools.

Figure I – Number of CEOs from Elite Business Schools.



DEPENDENT VARIABLE

When choosing financial indicators, including ROA, ROE, and YOY, the study used the framework that Salimi and Danesh (2024) described in more detail in their recent work. In their research on the relationship between foreign CEOs and firms' financial performance, these indexes were described as the primary measures of a firm's profitability, efficiency, and performance path. Gross and operating profit margins are also frequently used in financial analysis to evaluate the company's efficiency. On the other hand, YOY Growth is a relative measure that depends on the company's capability of extending its revenue generation throughout a year, depending on the general market and the definite efficiency of the strategic plan.

The selection of financial metrics is further justified because measuring the financial and operational performance of companies headed by different CEOs would require such metrics. These results support Salimi and Danesh's observations regarding the applicability of ROA and ROE for the comparison of the overall performance, which gives clues regarding the transformation of investments into net income between various companies and industries. (Salimi et al., 2024).

In addition to the financial ratios that involve the calculation of rates of returns such as the ROA, ROE, and YOY Growth, the study presents EBITDA Margin and Gross Profit Margin as other measures of financial performance. EBITDA Margin (Earnings before Interest, Taxes, Depreciation, and Amortization) is utilized for indispensable assessment, which represents the operational profitability of a company, excluding the effect of financing decisions and tax status. It affords higher visibility of the company's perks

after stripping out non-operating expenses and non-cash charges. Therefore, it is helpful for evaluating firms having different capital structures (Lins et al., 2017). Another advantage of the calculation of EBITDA Margin is its ability to provide more sensible comparisons of companies' operating results, especially in fields that have different levels of capital expenditures and tax systems (Flammer, 2015).

Likewise, the gross profit margin, which is important in identifying the ratio of gross profit to sales, clearly indicates the company's efficiency in managing the cost of sales and its pricing strategy. (Kumar & Mahakud, 2020). This metric is of most significance where the cost of production of products or services is relatively high or price control is a crucial success factor. By looking at the Gross Profit Margin, the firm's internal efficiency, and ways it can control direct costs, which are essential for sustainable financial performance, are obtained (Farooq & Noor, 2021).

To maintain the data consistency and accuracy of analysis, the study employed the scale technique of SPSS to scale all six years of data of each financial metric as one variable. This approach enabled research to level out such fluctuations, which can be, for instance, the economic shocks like COVID-19 that affected global markets with a knock-on effect on corporate financial performance (Baker et al., 2020). It is also desirable and possible to combine multiple years of data to uncover long-term changes and trend analysis to minimize the impact of egregious outliers.

INDEPENDENT VARIABLE

It is a variable of interest that is measured as the number of years spent by a CEO in a company. For this, the study compiled data on the year the CEO joined the leadership position in their respective firms and computed their years in office till 2024. In this case, by measuring the leadership tenure within the same firm, the study intended to evaluate the effects of the preservation of the dominant leadership on the corporation's financial performance as well as corporation stability, which is considered one of the key factors for hand corporate achievements. Nevertheless, studies have also proved that CEOs with long tenures perform better because they get acquainted with the company and its environment better, enabling them to make sound decisions that have superior financial results (Henderson et al., 2006).

MODERATORS

The research introduces two essential moderators further to explore the relationship between CEO tenure and financial performance: the two variables of interest include CEO Tenure with an MBA and CEO Tenure with an Elite MBA. They act as other independent variables that enable the study to evaluate the impact of advanced education on the performance of long-serving CEOs. In particular, the moderator of CEO Tenure with an MBA was obtained by multiplying the number of years a CEO has served as defined earlier in operational definition (Experience Year) by 1 if the CEO possesses an MBA and 0 if otherwise. Likewise, the moderator for CEO Tenure with an Elite MBA was obtained by multiplying the CEO's Experience Year by a dummy variable where elite MBA graduation was represented by 1 and other institute graduation was represented by 0. This can allow us to not only look at the relationship of tenure with performance but also the interaction of the enhanced value from an MBA degree and, especially, from a prestigious business school to the changes made to fundamental CEO long-term control of a firm. Prior studies have documented how an MBA elevates the ability of a CEO to make strategic decisions for the firm (Bertrand & Scholar, 2003; Kaplan et al., 2012) and how the reputation of the business school increases the benefits (Baruch & Peiperl, 2000).

When identifying "Elite Business Schools" for the current research, the study used schools that populate the top positions in global MBA rankings and are renowned for their academic prestige, robust alumni networks, and graduates' performance. The following schools were included: Harvard University Business School, Stanford Graduate School of Business, and Wharton School at the University of Pennsylvania, Kellogg School of Management of Northwestern University, Booth School of the University of Chicago, Columbia Business School, and NYU Stern School of Business. Due to the high level of competition, the

institutions admit few students, although the graduates from these institutions are considered influential (Byrne, 2011).

CONTROL VARIABLE

A corporate entity's age is a control variable that controls the effect that the age of the corporation may attain on its performance. Larger firms possess more robust systems, organized and locally recognized cash flows, and organizational recognition, which influence the utilization of chief officer political appointees and financial results. Therefore, to rule out the impact of the age of the firm on the financial performance, the study tried to control for this variable so that the study could separately observe the effects of CEO tenure and education levels on financial data (Hu, W., & Zhang, X. 2023).

DATA ANALYSIS

A correlation analysis is run using the IBM SPSS, testing the relationship between the independent variable (CEO tenure) and the moderators (MBA status and Elite MBA status) with each of the financial performance indicators, including ROA, ROE, Gross Profit Margin, EBITDA Margin, and the YOY Growth. It is with the help of this correlation that the direction and strength of those relationships between CEO characteristics and the leading financial results are defined, and basic knowledge of dependencies is obtained.

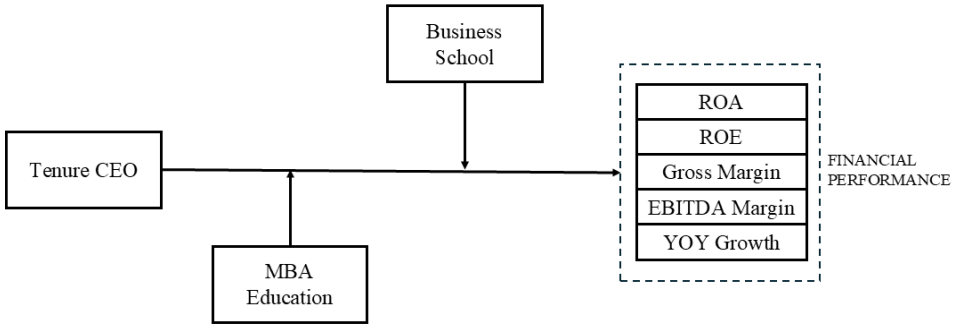
In a further step, the study also employed a multiple regression analysis to look deeper into the effect of these variables. The study's regression model took the form:

$$\textit{Each Financial Metric} = \beta 0 + \beta 1\ (\textit{Tenure CEO}) + \beta 2\ (\textit{Tenure CEO} \times \textit{MBA}) + \beta 3\ (\textit{Tenure CEO} \times \textit{Elite Business School MBA}) + \beta 4\ (\textit{Age of corporate}) + \epsilon$$

This model also determines the p-values and the R^2 values for the predictor to evaluate the statistical significance as well as the goodness of the model. The reasoning for using multiple regression analysis draws a substantial amount of support on the fact that this is one of the best techniques that can be used in a multiple regression context to provide an understanding of how different variables affect the overall financial performance (Cohen et al., 2003).

The regression analysis also showed that the years of CEO tenure in the office and if the CEO obtained an MBA from a top business school, then the firm's financial performance would be enhanced in all the tests. The obtained p-values highlighted the overall statistical significance, and the R^2 values supported the idea that the proposed model accounted for a rather significant proportion of the financial results' variability. These conclusions correlate with prior research that suggests increasing the leaders' experience level and gaining higher education helps improve the effectiveness of the latter (Cohen et al., 2003). Figure II below shows the interrelatedness of the variables used in the study.

Figure II – Interrelationships of the variables used in the study.



RESULTS

Table I, below shows the results of correlation analysis of effect of CEO tenure, MBA, and elite MBA on business financial performance.

Table I – Effect of CEO tenure, MBA, and elite MBA on business financial performance.

	Mean	S-Deviation	Return on Asset	Return on Equity	Gross Margin	EBITDA	YOY Growth
Control Variable:							
Age of Corporate	49.612	49.180	-0.790	0.000	-0.500	-0.004	-0.230
Dependant Variable:							
Tenure CEO	8.175	8.792	0.376**	0.319**	0.331**	0.505**	0.415**
Tenure CEO with MBA	6.623	3.830	0.474**	0.342**	0.386**	0.513**	0.458**
Tenure CEO with Elite MBA	5.798	2.289	0.548**	0.415**	0.391**	0.526**	0.571**
NOTE: *n = 500, p<0.01*							

Besides, the coefficient summary table gives an understanding of the effect of CEO tenure, MBA, and Elite MBA on business performance in terms of the selected measures of financial performance. This examination suggests that there is a positive influence related to these financial consequences of CEO tenure. However, it is even more significant in cases where an MBA, especially from a ranked university, has been attained. The mean and standard deviation are also helpful in determining the dispersion and variation of these variables in the given sample.

An evaluation of the mean values shows that CEOs in the sample have served for an average of 8. 175 years, while those with an MBA served for 6. 623 years, and CEOs with an Elite MBA served for only 5. 798 average years. This means that while there are more CEOs with experience in terms of tenure, there are indications that those who were educated at reputable universities might get to the CEO state at a faster rate. The previous years, especially for tenure, have high coefficients of dispersion (8. 792 years), which may mean that most of the CEOs in the sample have rather diverse experience levels, potentially due to different phases of leadership change in managerial activities or other specific characteristics of industries to which companies belong.

The coefficients for the CEO tenure are positive and statistically significant for all the variables representing the financial performance of the firm with higher beta values for EBITDA % (0. 505) and YOY Net Income Growth (0. 415). On this basis, it can be postulated that only CEOs who have served in this capacity for a longer time may be in a better position to understand their company's operations and, therefore, shape its profitability and sustainable growth. These results are consistent with the prior literature, which supports the idea that the longer tenure of the CEO is associated with better performance of the firm, owing to the firm-specific information and good relations with internal and external stakeholders (Finkelstein et al., 2009).

MBA and Firm Performance CEOs with MBA education possess higher coefficients in all evaluated measured compared to CEOs with tenure only; ROA has risen from 0. 376 to 0.474; ROE from 0.319 to 0. 342. This enhancement gives credence to concerns about upgraded education as it tends to produce CEOs tactful with crucial strategic and financial management competencies in organizations. The fact that an MBA has influences on the firm performance is also well corroborated by research theories that show that MBA holders come with an analytical mindset, leadership training, and a wider perspective over the executive job; these result in better financial performance by the firms (Baruch & Peiperl, 2000).

It is seen that the highest coefficients are for CEOs with an Elite MBA across all the metrics. For example, the ROA is equal to 0.543, and the EBITDA margin goes up to 0.526. These results imply that the content quality of MBA programmers, especially that offered by the few highly ranked universities, positively adjusts the financial performance of the CEO. These could have been due to several reasons; probably owing to the networks, higher knowledge base, and leadership skills which elitist organizations offer (Ibarra, 1993). The fact that coefficients are consistently higher across the board tells us that it is the Elite MBA-equipped CEOs who are in a better place to capitalize on their education and connections to deliver

superior financial performance. IF tenure has shown that those CEOs who had served their organizations for a certain number of years had qualities needed and that could lead such organizations, then MBA and Elite MBA showed that being educated and having education from an elite institution, respectively, enhanced financial performance and profitability of organizations. What is more, the same pattern is observed for all types of financial characteristics, which implies that firms should pay attention to the CEO's experience and the quality of education. All the coefficients estimated are statistically significant and less than 0. 01, indicating that these results are quite robust. Table II below shows the results of regression analysis of the effect of CEO tenure, MBA, elite MBA on business financial performance.

Table II – Regression Analysis of the effect of CEO tenure, MBA, elite MBA on business financial performance.

	Return on Asset	**Return on Equity**	**Gross Margin %**	**EBITDA %**	**YOY Growth**
	P- Value	P- Value	P- Value	P- Value	P- Value
Control Variable:					
Age of Corporate	0.780	0.842	0.562	0.489	0.714
Dependant Variable:					
Tenure CEO	0.00009	0.01200	0.00800	0.00001	0.00630
Tenure CEO with MBA	0.00001	0.00600	0.00019	0.00001	0.00058
Tenure CEO with Elite MBA	0.00001	0.00016	0.00001	0.00001	0.00013
Model R2	**0.588**	**0.512**	**0.499**	**0.698**	**0.785**
NOTE: *n = 500*					

This regression analysis is the second test after the initial correlation analysis performed to know the results that can be obtained by the organization for the CEO tenure, educational background and financial performance. These studies thus suggest that the effects of these variables are indeed an important phenomenon that cuts across most of the financial parameters and is influenced by MBA status and the extent of prestige attached to the educational institution of the employees.

Regression analysis results indicate that only CEO tenure is statistically significant with p-values <0. 05, positively relates to financial performance, especially ROA (0. 00099) and EBITDA % (0. 00001). This implies that CEOs who stay in their respective organizations for a long are able to contribute their experience to realize superior financial performance. CEO tenure is widely accepted as a factor that improves firms' performance as experts have found out that CEOs in their early years of service are able to understand their firms better than fresh CEOs (Khanna Palepu, 2010).

The use of MBA status as a moderator enhances this relationship even further. The p-values obtained for CEOs with MBA variables are lower compared to the tenure, suggesting that education makes the CEO a better player when it comes to improving performance financially. For instance, the model is most informative when it comes to Gross Margin with an accuracy of p= 0. 00019 and YOY Growth p= 0.00058. These findings are in line with past studies indicating that MBA education enhances CEOs' abilities in terms of strategic and financial planning that would later enhance corporate performance (Zhang, 2008).

It is obtained that the CEO elite MBA group has the lowest p-values for all the measures, and it is minimum for EBITDA margin with a p-value of 0. 00001 and ROA with a p-value of 0. 00016. This underlines the reason elite business schools are viewed as forums delivering both rigorous training and corporate connections, boosting a CEO's authority and increasing company revenues. In different research works, the focus has been placed on the ability of elite business schools to contribute to the development of superior leaders and, by doing so, once again stressing the fact that the degree of competitiveness of an education organization can determine the effectiveness of executives in charge (Barker & Mueller, 2002).

The model also shows the R^2 values, which show the extent to which the variation of these financial performance metrics can, in fact, be explained by these independent variables. For example, the model accounts for 78. 5% of the variation in YOY Net Income Growth and shows how the level of CEO tenure and educational background could help explain these earnings. However, by examining the coefficient of determination equal to 0.499 for Gross Profit Margin, it is possible to understand that other variables may

also have a significant impact on this particular value, which once again ascertains the fact that financial performance is a rather complex and depends on various internal and external factors (Jensen & Zajac, 2004).

Conclusively, these findings re-endorse experience and education as major prerequisites that affect the financial performance of companies. CEOs with relatively long tenure and those with higher education qualifications, including postgraduate level, especially those from higher learning institutions of reputable universities, can better influence superior financial performances. From this it can be inferred that these characteristics should be valued and pursued in leadership selection and training within organizations in an effort to attain the optimum level of the corporate's performance.

DISCUSSION

The results from the analysis also provide support to the model and hypotheses in the study to show that CEO tenure, when coupled with an MBA and more so an Elite MBA, correlates with positive effects on key financial performance indicators, namely, ROA, ROE, Gross Margin, EBITDA margin and YOY Growth. The fact that p-values are less than 0. 05 shows statistical significance. It gives very strong evidence to the hypothesis that CEOs who served more time in the position and have received their education in higher-ranked universities guarantee better financial results. These results share the same empirical evidence that elaborated work experience and high-quality education provide CEOs with tools to successfully manage business environments and provide strategies that would improve corporate profitability and growth.

In addition, we find that the coefficients of determination, R^2, reveal that the study model accounts for a significant part of the variability in financial performance indices. The robust explanatory capability of the selected variables gives credence to them as indexes of financial success. The importance of tenure and the type of experience, especially coming from institutions, thus means that companies should pay attention to these factors as a way of getting the right leaders that would enhance the financial performance of the company. Such findings not only support the study hypothesis but also contribute to the existing literature about the impact traits of leaders have on corporate performance in extending the learning of this issue for both theoretical and empirical studies, as well as for the practice of corporate governance.

CONCLUSION

In conclusion, it is possible to state that the research offers a rich understanding of how CEO tenure and educational background are related to financial performance; however, the following points can be taken as suggestions for further investigations of these relationships. Thus, future research might analyze if similar effects are found when focusing on the other types of advanced education or professional certifications for CEOs, apart from MBA. Furthermore, comparing these relationships across industries and countries may shed more light on general patterns of how sorts of characteristics of CEOs or particular economic conditions of industries or regions impact the effectiveness of such characteristics. Prospective investigations of these variables over a longer period could also balance more understanding of how exactly the influence of CEO tenure and education changes with the progression of time, especially concerning the effect of economic shocks or alterations in the corporate governance settings. These areas for future research would not only corroborate as well as enrich this study's conclusions but also add to the body of knowledge in the field of leadership and organizational performance.

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