

ADVANCES IN TAXATION

Edited by John Hasseldine

ADVANCES IN TAXATION

VOLUME 29

ADVANCES IN TAXATION

ADVANCES IN TAXATION

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EDITED BY

JOHN HASSELDINE

University of New Hampshire, USA



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INVESTOR IN PEOPLE

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ABOUT THE EDITOR

Since 2011, Dr. John Hasseldine has been a Professor of Accounting and Taxation in the Peter T. Paul College of Business and Economics at the University of New Hampshire. Previously he was a Chair and Head of the Accounting and Finance Department at the University of Nottingham Business School. John, a Kiwi, qualified as a Chartered Accountant in New Zealand and is a Fellow of the Association of Chartered Certified Accountants (FCCA) based in London.

John has served on three government committees in the United Kingdom and was a contributor to the Mirrlees Review of the UK tax system conducted by the Institute for Fiscal Studies. He has been an external expert at the International Monetary Fund, a visiting professor at the University of New South Wales, Sydney, and a keynote speaker at several international tax conferences. He travels widely, speaking at national and global conferences, including one on VAT organized by the OECD, World Bank and IMF, and a conference on dealing with the national tax gap held at the US Library of Congress in Washington DC. He is a co-author of *Comparative Taxation: Why Tax Systems Differ* (Fiscal Publications, 2017) and an International Fellow at the University of Exeter Tax Administration Research Centre.

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INTRODUCTION

Tax Research in Challenging Times

Taxpayers, tax systems, and tax researchers have been seriously challenged by the COVID pandemic. Yet, in the difficult times posed by the pandemic, it has been heartening to continue to see steady submissions to *Advances in Taxation*. I remain grateful to the editorial board for their continued support and am also pleased to acknowledge the ten ad hoc expert reviewers listed below for their valuable and timely reviewing activity during 2020–2021.

William D. Brink (Miami University)
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In Volume 29, there are seven chapters. In the lead chapter, Hannah Smith responds to a call in prior literature for more research on determinants of cross-sectional variation in implicit taxes and addresses the question of whether market competition influences a firm's implicit tax burden. Implicit taxes are defined as the pretax rate of return disadvantage earned on an investment that is taxed preferentially. The study relaxes the assumption of perfect market competition in the Scholes and Wolfson (1992) framework and finds that firms in industries with lower competition bear lower implicit taxes and firms in industries with higher competition bear higher implicit taxes. These findings are consistent with monopoly and oligopoly behavior predictions where firms in less competitive industries have greater price setting power and can retain more of their tax savings while market forces in competitive industries force companies to pass along any savings to customers.

Next, Kimberly S. Krieg, in Chapter 2, extends prior literature on the extent to which firms repatriate indefinitely reinvested foreign earnings. Noting that little is known regarding the repatriation of indefinitely reinvested foreign earnings outside of the temporary tax incentive provided by the 2004 American Jobs Creation Act (AJCA), the study provides evidence on such repatriations by identifying a sample of 67 firms from 2009 to 2015 that reverse the indefinite reinvestment designation of foreign earnings and announce a repatriation of

foreign cash. In contrast to repatriations following the 2004 AJCA, the study does not find evidence that a single economic factor, such as share repurchases, motivates the repatriation. Although, in general, there is no evidence of a significant market response to the announcements, the results show a negative market reaction to announcements by low foreign ETR firms without tax offsets, suggesting that the tax may not be fully priced.

A set of three international contributions relate to tax compliance. In Chapter 3, Schoeman, Evans, and du Preez address the impact of a VAT rate change on the tax compliance behavior of small business entities. In order to address the impact of VAT rate changes on tax compliance behavior, an online field experiment was conducted and designed to identify the implications of rate changes of various directions and magnitude. The results indicate that small business entities are inclined to reduce the VAT liability when there is an increase in the VAT rate, and do so by overstating purchases rather than by underdeclaring sales. The study finds that the greater the magnitude of the VAT rate increase, the greater the level of noncompliance, yet in contrast, no significant relationships were identified between a decrease in the VAT rate and tax compliance.

In Chapter 4, Rashid et al. examine the effects of governance quality and religiosity on tax evasion in OECD countries. Using data gathered from 36 OECD countries covering the period of 2002–2015, the study reports a negative impact of governance quality and religiosity on tax evasion, implying the higher level of governance quality and religiosity, and the lower level of tax evasion across the countries. Among the governance qualities, the higher the government effectiveness, the rule of law, and regulatory quality, the lower the level of tax evasion as they have a negatively significant impact on tax evasion. On the contrary, the positive impact of the voice of accountability and political stability on tax evasion implies that by increasing these two factors, tax evasion also increases.

Next, a team of researchers from Vietnam, Nguyen et al., in Chapter 5, note there is some evidence suggesting that tax evasion in Vietnam has increased over time. Their study examines the effects of taxpayer emotion, trust, and perception on tax compliance in Vietnam. A simple, theoretical model in which emotion and trust affect tax compliance both directly and indirectly through perception as a mediating variable is constructed, with the results showing that taxpayers' perceptions positively and significantly influence tax compliance, whereas emotion and trust exert significant and positive effects on tax compliance both directly and indirectly (via perception). The authors conclude that voluntary tax compliance in Vietnam may be improved through better tax administration services, more fiscal policy accountability, and proactive tax socialization.

In Chapter 6, Dowis, Englebrecht, and Wiggins note that married couples in the United States receive tax benefits such as favorable tax rates, higher exclusions, higher phaseouts, and combined deductions. However, joint and several tax liability is a major issue facing these taxpayers. The term innocent spouse relief, within the Internal Revenue Code, is a direct result of one spouse failing to satisfy the joint liability for the married couple. Since both individuals are jointly and severally liable for the combined liability, the innocent spouse may be

responsible for the liability in whole or in part. The authors examine this highly litigated arena of innocent spouse relief, and drawing on IRS guidance, they outline the factors useful in determining whether innocent spouse relief should be granted. Additionally, their study creates a predictive model containing only three significant factors (economic hardship, knowledge/reason, significant benefit) capable of predicting with approximately 89% accuracy. These same three variables are significant using multiple regression.

Lastly, in Chapter 7, Killey and Walton in a pedagogical contribution note that when presented with technical topics, undergraduate accounting students can be overwhelmed by information transmitted in a pure lecture format. Further, a lecture format does not allow for much student interaction or enable learning of higher-level skills that could be useful if the underlying content is changed by future regulations. Killey and Walton suggest that position paper instructional tools could be a beneficial alternative. A position paper can bring out students' soft skills of communication and critical thinking by making them take a stand, which is key for tax professionals and accountants generally. Since class meeting time is limited and face-to-face interactions are not always possible, a written position paper provides an alternative that can benefit students' understanding of technical information.

John Hasseldine
Editor, *Advances in Taxation*

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IMPLICIT TAXES IN IMPERFECT MARKETS

Hannah Smith

ABSTRACT

This research addresses the question of whether market competition influences a firm's implicit tax burden. Implicit taxes are defined as the pretax rate of return disadvantage earned on an investment that is taxed preferentially. The [Scholes and Wolfson \(1992\)](#) model predicts that implicit taxes will fully offset any benefit from preferential tax treatment leading to no benefit from lower explicit taxes; however, their theory assumes perfect market competition. This chapter relaxes the assumption of perfect market competition and finds that firms in industries with lower competition bear lower implicit taxes and firms in industries with higher competition bear higher implicit taxes. These findings are consistent with monopoly and oligopoly behavior predictions where firms in less competitive industries have greater price setting power and can retain more of their tax savings while market forces in competitive industries force companies to pass along any savings to customers ([Mason, 1939](#)). Furthermore, these findings answer the call in the literature for more research on determinants of cross-sectional variation in implicit taxes ([Shackelford & Shevlin, 2001](#)).

Keywords: Corporate taxation; corporate tax rates; implicit taxes; corporate tax preferences; cost advantage; market concentration

INTRODUCTION

US tax law provides firms with tax preferences through reduced tax rates, tax credits, higher and earlier deductions, delayed income recognition, exemptions, etc. ([Scholes et al., 2015](#)). All else equal, this will encourage firms to increase investment in tax-preferred areas, thus increasing the supply of outputs. In a

perfectly competitive market, this increase in output supply will drive down output price and reduce the rate of return in tax-preferred areas (Jennings, Weaver, & Mayew, 2012). The Scholes and Wolfson (1992) model holds that investment continues to increase in these tax preferred areas until there is no after-tax rate of return difference between investing in a tax preferred versus nontax preferred area (Nicholson, 2005). This reduced pretax rate of return on an investment that is taxed preferentially is the implicit tax (Scholes et al., 2015).

Markets lie along a spectrum that ranges from perfectly competitive to monopolistic (Nicholson, 2005). The Scholes and Wolfson (1992) model suggests that in perfectly competitive markets implicit taxes will rise to offset fully any benefit from reducing explicit taxes, i.e., effective tax rates (Scholes et al., 2015). Similarly, theory predicts that in monopolistic settings, implicit taxes may be closer to zero and firms may retain more of their explicit tax preferences. However, in the US economy, neither monopolies nor perfect competition are likely, and in reality, most firms participate in markets that lie somewhere between these two extremes. Firms face competition both on the input side, what they purchase to produce their goods or services, and on the supply side, what they sell to customers. Consistent with prior research (e.g., Chyz, Gaertner, & Laplante, 2014; Kubick, Lynch, Mayberry, & Omer, 2015), this chapter focuses on the supply side (the output side of what firms produce and/or sell) where measurement of competition is more reliable. Prior research also uses supply side data to measure competition (Chyz et al., 2014; Kubick et al., 2015). Specifically, Kubick et al. (2015) show that firms with higher product market power (i.e., less competition) engage in more tax avoidance, and Chyz et al. (2014) find that firms selling products with less elastic demand (i.e., potentially less competition) avoid more taxes than firms with more elastic demand.¹ These prior findings could suggest that firms in these lower competition industries avoid more taxes because they retain more of the tax benefit via lower implicit taxes.

In addition, other research suggests that implicit taxes are generally not as high as would be expected in a perfectly competitive market (e.g., Ayers, Lefanowicz, & Robinson, 2000; Berger, 1993; Engel, Erickson, & Maydew, 1999; Erickson & Wang, 1999; Guenther, 1994; Henning & Shaw, 2000; Key, 2008; Miller, 1977; Shackelford, 1991; Stickney, Weil, & Wolfson, 1983). According to the Scholes and Wolfson (1992) model, implicit taxes should fully offset any advantage from lower explicit taxes in perfectly competitive markets. Moreover, extant tax research focuses only on firms' explicit tax burdens and has not attempted to measure and include implicit taxes in the analyses, which presents an incomplete picture of US corporations' tax burdens (Hanlon & Heitzman, 2010).

Some prior research has attempted to look at how competition influences implicit taxes; however, work is still needed in this area. Scholes and Wolfson (1992) first gave a name to implicit taxes in their seminal tax strategy textbook where they suggest that implicit taxes will always fully offset any benefits firms receive from investing in tax preferred areas. However, their theory relies on a frictionless market, which includes perfect competition. Wilkie (1992) first measures implicit taxes at the firm level and finds evidence of implicit taxes not fully

offsetting explicit tax benefits. He surmises that his findings are either due to nontrivial market frictions or systematic measurement error. Callihan and White (1999) attempt to directly examine whether market power, a market friction that may prevent competition, influences implicit tax formation. And they state that they find evidence of lower implicit taxes for firms facing lower levels of competition. However, Wright (2001) shows that Callihan and White's (1999) findings are actually related to tax preference (or tax subsidy) usage rather than implicit taxes. Thus, Callihan and White's findings, while interesting and useful, do not answer whether a specific market friction, imperfect competition, influences implicit taxes. Salvador and Vendrzyk (2006) examine how imperfect competition in a very niche industry, the defense contracting industry, influences implicit taxes. They find that firms facing less competition bear lower implicit taxes. However, their results are not generalizable as their sample is extremely small and examines a very unique industry. Jennings et al. (2012) examine as the focus of their work how implicit taxes change around the tax reform act of 1986 (TRA86) and find implicit taxes decline following the tax law change. In supplemental analysis, they briefly examine competition and find that competition did not change post TRA86, and they additionally find some evidence that the implicit tax decline following the tax law change was concentrated in high competition industries. While these results are interesting, they do not answer the question as to whether imperfect competition directly influences implicit tax formation. Finally, Chyz, Luna, and Smith (2021) examine implicit taxes in multinational and domestic firms and find evidence that implicit taxes are lower for multinational than domestic firms. They further examine proxies for various market frictions and find that multinational firms experience lower levels of some market frictions which could explain why implicit taxes are lower for multinational than domestic firms.

Although this prior research has answered many important questions in this area, it also exposes a gap in the literature and provides the basis for the research question: Do variations in market competition influence implicit taxes? This work complements prior research that examines variation in explicit taxes (Hanlon & Heitzman, 2010) and answers the call from Shackelford and Shevlin (2001) and Scholes et al. (2015) for more research that considers firms' entire tax burdens – both implicit and explicit.

To answer this question, this chapter estimates market competition at the North American Industry Classification System (NAICS) industry level using market concentration ratios of the top four firms and the Herfindahl–Hirschman index (HHI) (Callihan & White, 1999). This chapter then modifies and extends the methodology developed in Jennings et al. (2012) to test variation in implicit tax differences arising from industry-level competition. This chapter finds that implicit taxes are lower for firms in industries with lower competition and higher in industries with higher competition as predicted by theory. Firms in industries with lower competition (closer on the spectrum to a monopoly) appear to be able to retain some of the tax preference benefits whereas firms in industries that are more competitive have more of their explicit tax preference benefits eliminated by implicit taxes.

These findings should be of interest to managers, researchers, and tax policymakers. The accounting and finance literatures typically characterize firms' tax outcomes as reflecting a strategic focus or "investment" in tax planning (Mills, Erickson, & Maydew, 1998). In other words, managers expend resources to minimize taxes (Chyz et al., 2014; Chyz, Gaertner, Kausar, & Watson, 2019). These results show that increased market competition will offset some of the benefits from paying lower explicit taxes. The results may help explain the "undersheltering puzzle" visited in prior literature – i.e., why more tax avoidance does not occur (Hanlon & Heitzman, 2010; Weisbach, 2001). Finally, these results inform tax policy by documenting sources of variation in implicit taxes. The existence of implicit taxes can provide a signal to policymakers that legislated tax preferences effectively incentivized a targeted area.²

This chapter is structured as follows. The following section discusses prior research and develops the hypothesis. Then, the chapter outlines the sample selection procedures, variable definitions, research methodology, and provides results. The chapter concludes in the final section.

PRIOR RESEARCH AND HYPOTHESIS DEVELOPMENT

Prior Research

The literature regarding explicit US corporate tax burdens is extensive and well developed. For example, prior literature finds a number of determinants of explicit taxes including firm size, capital structure, asset mix, profitability, international operations, tax shelter usage, whether pretax or posttax income is used for compensation decisions, equity-based compensation, concentration of ownership, whether the tax department is a profit center, tax director compensation contracts, top executive characteristics, short selling, environmental uncertainty, and CEO centrality (Armstrong, Blouin, & Larcker, 2012; Chen, Chen, Cheng, & Shevlin, 2010; Chyz & White, 2014; Desai & Dharmapala, 2006; Dyreng, Hanlon, & Maydew, 2010; Guo, Chi, & Cook, 2018; Gupta & Newberry, 1997; Hanlon & Heitzman, 2010; Huang, Sun, & Zhang, 2017; Lahav & Salganik-Shosha, 2016; Phillips, 2003; Rego, 2003; Robinson, Sikes, & Weaver, 2010; Zimmerman, 1983). However, this prior literature generally estimates tax burdens without directly measuring implicit taxes.

Implicit taxes arise as reductions in the benefits of explicit tax preferences. This chapter focuses on the supply side with the firm as the supplier. First, capital is attracted to projects taxed preferentially. As companies increase production in these tax advantaged areas, the supply curve shifts to the right. When the supply curve shifts to the right, in a perfectly competitive market, price of the output decreases. In a perfectly competitive market, the lower selling prices reduce risk-adjusted after-tax rates of return until after tax rates of return equalize among differentially taxed projects or firms (Jennings et al., 2012). Implicit taxes are, thus, the pretax return reduction that equalizes after tax rates of return for tax-favored and tax-disfavored assets. The Scholes and Wolfson (1992) model predicts that implicit taxes will fully offset explicit tax

benefits leading to no benefit from investing in tax-advantaged projects. One can also look at this as a total tax burden story where in a perfectly competitive economy, the total tax burden, calculated as the sum of explicit and implicit taxes, is the same across projects and across firms (Callihan & White, 1999). However, prior research suggests that the total tax burden varies and implicit taxes do not always fully offset explicit tax benefits (Jennings et al., 2012; Wilkie, 1992).

Shackelford and Shevlin (2001) and Scholes et al. (2015) remind researchers and policymakers to consider “all taxes” in analyses and that ignoring implicit taxes leaves a gap in our understanding. Prior research in implicit taxes measures implicit taxes at an aggregated asset level or a firm level. Implicit taxes at the asset level are easier to conceptualize relative to implicit taxes at a firm level. Consider municipal bonds. Interest from municipal bonds is generally not taxed to an investor, while interest from corporate bonds of comparable risk is subject to investor-level taxation. However, one would expect the pretax rates of return to reflect the differences in taxation. Then corporate bonds will have higher pretax returns than municipal bonds of comparable risk. One would also expect equal after-tax rates of return between municipal and corporate bonds of comparable risk in a perfectly competitive economy. The lower pretax rate of return for tax-favored municipal bonds is the implicit tax.

The ease of interpretation is likely to explain why much of the prior literature on implicit taxes has measured or examined variation in implicit taxes at an asset level (e.g., Ayers et al., 2000; Berger, 1993; Engel et al., 1999; Erickson & Wang, 1999; Guenther, 1994; Henning & Shaw, 2000; Key, 2008; Key, Lightner, & Luo, 2017; Miller, 1977; Plummer, 2002; Shackelford, 1991; Stickney et al., 1983). Though a simplified interpretation, if we consider firms to be collections of investments made (assets purchased) and returns received (profits made on sales), then much of the same theory and logic that assists with understanding implicit taxes at the asset level can be extended to implicit taxes at the firm level.

There are distinct advantages with attempting to capture implicit taxes at the firm level. Measuring implicit taxes at the firm level allows for better comparisons with much of the extant explicit tax literature that also uses firm-level measures (Callihan & White, 1999; Chyz et al., 2021; Jennings et al., 2012; Markle, Mills, & Williams, 2020; Salvador & Vandrzyk, 2006). Prior research at the firm level finds that full implicit tax formation is impacted by the TRA86 (Jennings et al., 2012), market power within niche industries or investments (Salvador & Vandrzyk, 2006; Shackelford, 1991; Stickney et al., 1983), aggressive tax planning (Jennings et al., 2012), tax shelter use (Jennings et al., 2012), multinational operations (Chyz et al., 2021), and ability to shift income (Markle et al., 2020).

Literature that examines implicit taxes at an asset level generally compares returns between two assets identical except for tax characteristics and attributes the difference in return to an implicit tax. Miller (1977) discusses, among many things, the implicit taxes borne by holders of tax-preferred versus fully taxable corporate bonds. Stickney et al. (1983) examines a specific company – General Electric and subsidiaries – and finds evidence of implicit taxes on the tax preference benefits of tax transfer leasing. Shackelford (1991) studies a unique setting

involving employee stock ownership plans (ESOPs) and finds that some of the explicit tax benefits for ESOPs are eliminated via implicit taxes. [Berger \(1993\)](#) investigates implicit taxes related to the 1981 research and development (R&D) tax credit and finds evidence of implicit taxes by isolating the impact of spending increases for R&D related to price increases (input price increases would be evidence of implicit taxes) versus volume increases. [Guenther \(1994\)](#) finds evidence of implicit taxes on treasury bills by comparing pretax returns of treasury bills around the rate changes (i.e., December versus January). [Engel et al. \(1999\)](#) find support for small but lower levels of implicit taxes for trust preferred stock than theory predicts by examining the rate of return investors were willing to accept for financial instruments identical except for the taxability of the interest/dividends. [Erickson and Wang \(1999\)](#) find evidence of implicit taxes in a specific transaction between two firms in which one party achieved huge tax savings; however, evidence of implicit taxes shows that at least a portion of the benefits were transferred to the other party via lower stock transfer prices. [Ayers et al. \(2000\)](#) analyzes the goodwill amortization deduction enactment and finds support that these goodwill amortization deductions generated implicit taxes by analyzing the relation between preexisting goodwill and acquisition premiums before and after the enactment of the act allowing the deduction of goodwill amortization from qualifying corporate acquisitions. In addition, [Henning and Shaw \(2000\)](#) examine changes around the tax deductibility of goodwill and find evidence of implicit taxes for this tax preference. [Key \(2008\)](#) examines implicit taxes for a unique sample of racehorse purchases where some are allowed bonus depreciation and finds evidence of implicit taxes but below the level theory predicts. [Key et al. \(2017\)](#) find evidence of implicit taxes in real property prices in the state of Georgia. Specifically, they find a negative relation between property tax effective tax rates and real property values.

This chapter builds upon this asset-level and firm-level research and will contribute to this literature stream by examining on a large-scale one very important determinant of implicit taxes: market competitiveness.

[Salbador and Vandrzyk \(2006\)](#) and [Callihan and White \(1999\)](#) help develop the foundation of this study. [Wright \(2001\)](#) determines that [Callihan and White \(1999\)](#) actually measure tax preferences rather than implicit taxes. [Callihan and White \(1999\)](#) analyze whether market competition influences implicit taxes. They find that competition does influence tax preference usage; however, their findings that competition influences implicit taxes as shown in [Wright \(2001\)](#) cannot be upheld as their measurement requires the assumption of perfect competition, and they show that perfect competition does not exist in all of the industries examined. Further, [Salbador and Vandrzyk \(2006\)](#) show that in a very niche and small industry, the defense contracting industry, that competition influences implicit taxes. However, their results are not generalizable as the defense contracting industry is small and unique. Overall, these findings lay the groundwork for this chapter and begin to suggest varying implicit taxes as competition changes. The main analyses in this chapter do not suffer from this same limitation as in the [Callihan and White \(1999\)](#) analysis as this chapter uses a different method of measuring implicit taxes. Specifically, implicit taxes are the reduction in the

benefit of the explicit tax preferences. The approach used in this chapter does not require frictionless markets to measure implicit taxes as is the case in Callihan and White (1999). This chapter leaves it to future research to determine the interactive effect of tax preferences, implicit taxes, and competition. Salvador and Venzryk (2006) look at a niche industry – the defense contracting industry – and make assertions based on market power within this niche industry. Their results are limited to the particular industry, whereas the results found here are more generalizable across a population.

As discussed, the Scholes and Wolfson (1992) model predicts equal total tax burdens (calculated as the sum of explicit and implicit taxes) across firms (Callihan & White, 1999). In other words, implicit taxes should fully offset any benefit from lowering explicit taxes. While prior literature has found evidence that rejects implicit taxes fully offsetting all explicit tax preference benefits and total tax burdens not being perfectly equal across all firms, evidence supports the existence of varying degrees of implicit taxes (Callihan & White, 1999; Jennings et al., 2012; Wilkie, 1992). The general framework holds that the more a market diverges from being perfectly competitive (via lower market competitiveness), the more likely implicit taxes do not fully offset explicit tax benefits, as would be expected in a perfectly competitive market. Measuring market power as industry market concentration and a firm's market share, Callihan and White (1999) find evidence that the use of tax preferences varies with market competition.³ Further, Salvador and Venzryk (2006) find that in a very small industry, ability to set prices (i.e., more monopolistic) reduces implicit taxes at the firm level. How market competition affects the degree of implicit tax formation prior literature has not examined. This research fills this gap by examining market competition's impact on implicit tax formation, which is a natural test as the Scholes and Wolfson (1992) model relies on the assumption of perfect competition.

Hypothesis Development

Implicit taxes arise due to increased demand or supply for a tax-preferred asset or investment. From the supply side, suppose Congress allows for a R&D credit thus creating a tax preference. Due to this tax preference, a computer hardware company might be incentivized to invest more in creating new and improved hardware. In a perfectly competitive market, this would increase hardware supply and, thus, lower hardware prices. These lower selling prices for the firms' output leads to lower pretax returns. This is the supply effect.⁴ The fundamentals of supply and demand hold that in a perfectly competitive market, as the supply in the particular industry increases and shifts the supply curve to the right, the equilibrium point shifts driving the price down on the outputs in the industry (Nicholson, 2005). The price drops to the point at which the equilibrium price equals the average production cost in the industry, leading to zero profits (or no benefit for investing in the tax preferred area, i.e., R&D in this example) (Nicholson, 2005). Alternatively, suppose this R&D credit is limited to a single firm that operates as a monopoly. In a monopoly, a firm operates at the point at which marginal revenue equals marginal cost (Chamberlin, 1933; Nicholson,

2005). A tax preference for the firm operating in a monopoly shifts the marginal cost curve down, leading to a change in the equilibrium intersection of marginal cost and marginal revenue (Chamberlin, 1933; Nicholson, 2005). This generally leads to an increase in quantity produced and in price. However, monopolies can earn a positive profit as $\text{profit} = (\text{price} - \text{average cost}) * \text{quantity}$, where $\text{price} \geq \text{average cost}$. If a firm operates in a monopoly, the market does not force the firm to shift the entire benefit of the tax preference (via lower pretax return, in this case lower price) to the customers, as is the case in a perfectly competitive market (Nicholson, 2005).

Even though the Scholes and Wolfson (1992) model suggests that one will find implicit taxes increasing in competition, this chapter may not find results in the sample if all industries in the sample are competitive enough to cause implicit taxes to form. The Federal Trade Commission is tasked with the job of identifying and breaking up monopolies that exist and exhibit unfair trade practices such as price fixing (Averitt, 1980). Therefore, industries in the United States may not vary enough in their competitiveness for identification of a relation between implicit taxes and competition.

The Scholes and Wolfson (1992) model implies that implicit taxes arise in the presence of tax preferences to fully offset the benefits of explicit tax preferences (Callihan & White, 1999). This model assumes perfect competition. In a non-perfectly competitive market, implicit taxes may not fully offset the benefits of tax preferences leading to lower implicit taxes than would be expected in a perfectly competitive market (Callihan & White, 1999). This leads to directional hypotheses stated in the alternative form for each of the three types of tests:

H1. Firms in industries with lower competition will have more of their explicit tax benefits eliminated via a pretax return disadvantage than firms in industries with higher competition.

H2. Firms in industries with higher competition will have stronger positive PTROE, GAAP_ETR relations than firms in industries with lower competition.

H3. Firms in industries with lower competition will have more negative ROE, GAAP_ETR relations than firms in industries with higher competition.

SAMPLE SELECTION PROCEDURES, VARIABLE DEFINITIONS, RESEARCH METHODOLOGY, AND RESULTS

Sample Selection Procedures

This chapter begins with all US firms with available data in Compustat for the years 2002, 2007, and 2012. This chapter uses these three years because it requires Census data to calculate the variables of interest, and the Census data are only produced every five years. This chapter uses the Census data to determine total industry sales within an industry. Compustat data capture only public firms, and prior literature has suggested using Compustat data only to measure competition biases results (Ali, Klasa, & Yeung, 2009).⁵ Additionally,