

Chiari, Alessandro

Working Paper

Do tax havens affect financial management? The case of U.S. multinational companies

IES Working Paper, No. 25/2024

Provided in Cooperation with:

Charles University, Institute of Economic Studies (IES)

Suggested Citation: Chiari, Alessandro (2024) : Do tax havens affect financial management? The case of U.S. multinational companies, IES Working Paper, No. 25/2024, Charles University in Prague, Institute of Economic Studies (IES), Prague

This Version is available at:

<https://hdl.handle.net/10419/301130>

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INSTITUTE
OF ECONOMIC STUDIES
Faculty of Social Sciences
Charles University

DO TAX HAVENS AFFECT FINANCIAL MANAGEMENT? THE CASE OF U.S. MULTINATIONAL COMPANIES

Alessandro Chiari

IES Working Paper 25/2024

Institute of Economic Studies,
Faculty of Social Sciences,
Charles University in Prague

[UK FSV – IES]

Opletalova 26
CZ-110 00, Prague
E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

Institut ekonomických studií
Fakulta sociálních věd
Univerzita Karlova v Praze

Opletalova 26
110 00 Praha 1

E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

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Bibliographic information:

Chiari A. (2024): " Do Tax Havens Affect Financial Management? The Case of U.S. Multinational Companies " IES Working Papers 25/2024. IES FSV. Charles University.

This paper can be downloaded at: <http://ies.fsv.cuni.cz>

Do Tax Havens Affect Financial Management? The Case of U.S. Multinational Companies

Alessandro Chiari

Institute of Economic Studies, Charles University, Prague, Czech Republic
E-mail: alessandro.chiari@fsv.cuni.cz

July 2024

Abstract:

This study examines whether the use of tax haven subsidiaries by U.S. multinational corporations (MNCs) is associated with more intense use of share buybacks and with improvement in management's ability to generating revenues. I find that MNCs' more intensive tax haven subsidiary use is positively associated with a higher management score, a higher buyback ratio, and a higher level of free cash flow. I also find a higher increase in the buyback ratio of U.S. companies following the sales of U.S. stocks from entities located in tax havens. In cross-sectional analyses, I identify channels through which the positive association between tax haven intensity and share buybacks is more pronounced. I also test the share buyback execution of U.S. MNCs affected by recent legislation promulgated in the U.S. (2017 corporate tax cut, 2017 repatriation tax). Our findings reveal a higher sensitivity to this legislation by MNCs with more presence in tax havens.

JEL: G23, G28, G32, G35, H26, K34

Keywords: Tax Havens, Subsidiaries, U.S. Multinational Corporations, Share Buybacks

Acknowledgement: I am grateful for helpful comments from Petr Jansky, Miroslav Palansky, Matěj Bajgar, Martin Besfamille, Mathias Sinning, Shumi Aktar, Marcelo Bergolo, Niels Johannesen, Juan Pablo Montero and numerous seminar participants. Alessandro Chiari acknowledges support from the Czech Science Foundation (CORPTAX, 21-05547M). This paper is part of a project that has received funding from the European Union's Horizon 2020 research and innovation program under the Marie16CHIARISkłodowska-Curie grant agreement No 870245.

1. Introduction

Corporate profitability has peaked in the last decade, yet this development has not translated into ubiquitous economic wealth (Lazonick, 2014). One of the roots of this phenomenon can be attributed to the allocation of corporate profits through share buybacks and to the role played by tax havens in reducing the taxes paid by multinational corporations (MNCs). Indeed, tax havens have been subject to increased global scrutiny by the G-20 industrialised nations, the Organisation for Economic Cooperation and Development (OECD), and various tax authorities, which recognise these countries for the significant role they play in reducing the amount of corporate taxes paid by MNCs (Desai et al., 2006a, 2006b; Dyreng & Lindsey, 2009; Levin, 2012).

Share buyback programmes are recognised as one of the main instruments used by MNCs to avoid taxation and redistribute profits to their shareholders (Hemel & Polsky, 2021; Hemel, 2022; Lazonick, 2014), hitting a record in 2022 of \$920bn of stocks repurchased by S&P 500 companies and marking the all-time highest level of earnings per share (EPS) of the index.

In this study, I examine whether U.S. MNCs' use of tax haven subsidiaries is associated with firms' more effective management ability and with more intense use of share buybacks. In particular, I investigate the relationship between a high presence in tax havens and three key independent variables: 1) a high management score constructed by Demerjian et al (2012), 2) a high level of free cash flow, and 3) a high usage of share buyback programmes by U.S. multinational companies. The rationale behind the link between the presence of multinational companies and a more frequent execution of share buybacks lies in fiscal incentives provided by tax havens in the tax treatment of many developed countries towards capital gains. The large popularity of tax havens among MNCs suggests a more extensive use of buyback programmes for these companies. Higher tax savings rates and after-tax cash flows are associated with the use of tax haven subsidiaries by MNCs (Gravelle, 2013; Levin, 2012; Global Tax Evasion Report 2024, 2023). Furthermore, companies with lower effective tax rates (ETRs) usually present higher scales of profits reported in tax havens (Janský, 2022). The higher profitability given by a lower ETR should be viewed favourably by the MNCs, which aim to maximise the wealth of their shareholders through pay-out policies.

Additionally, under U.S. legislation, buybacks carry a significant tax advantage for investors compared to dividends, estimated by researchers at the Wharton School of the University of Pennsylvania to be an ETR difference of 12.3% (Wharton Upenn, 2023). Buybacks are taxed at the capital gains tax rate of the country of residence, namely a lump sum tax to which the U.S. does not apply withholding tax for foreign investors, allowing them to defer any taxes by keeping their profits as unrealised capital gains. In contrast, dividends are taxed at an income tax rate and are therefore constantly subject to periodic taxation, to which withholding tax between 15% and 30% is applied if there are foreign investors (Wharton Upenn, 2023). This tax advantage makes it attractive for residents of countries with low capital gains tax to receive cash from share buybacks and not pay capital gain tax rates. For residents in countries with 0% or low capital gain tax rates, such as tax havens, the attractiveness becomes even more clear, given the possibility of paying a low lump sum tax on the revenues from share buybacks and then being able to repatriate the money already considered taxed in other countries.

Current research is still divided on the drivers behind the pay-out policies of MNCs (Panigrahi & Zainuddin, 2015; Blundell-Wignall & Roulet, 2013). Nonetheless, the favourable tax treatment derived from the capital

gains taxes undoubtedly favours buybacks over dividends, particularly benefiting companies less focused on signalling entity strength through a longer-term commitment to dividend pay-outs and more interested in boosting their earnings per share (Wharton Upenn, 2023).

The economic literature extensively analyses the scale of profit shifting from high-tax-level countries to tax havens where MNCs report profits to minimise taxation (Dharmapala, 2008; Hines, 2010; Alstadsæter, Johannesen, & Zucman, 2019; Clausing, 2020; Jansky & Garcia-Bernado, 2022). The literature also analyses in depth the impact of share buyback programmes on MNCs' financial statements (Lazonick, 2014). However, to our best knowledge, few studies have attempted to quantify the impact of tax havens on the usage of share buybacks and on the ability of management, despite recent attention on the topic after the U.S. government imposed a 1% excise on revenues from share buybacks (Tax Foundation, 2022) and the intention to quadruple it in the near future (Congressional Record, 2023).

To perform our analysis, I exploit a panel model in order to identify possible channels where the association between share buybacks, management ability, and tax haven subsidiaries is more accentuated. I also run a difference-in-difference analysis to observe possible changes in the behaviour of MNCs due to exogenous shocks caused by recent tax legislation in the U.S., i.e., the corporate tax cut from 35% to 21% in 2017, the repatriation tax of 2017, and the excise tax on revenues from share buybacks enacted in mid-2022. I determine shareholders' preference for buybacks over dividends by analysing the sales of U.S. stocks from entities with residency in tax havens compared to entities resident in other foreign countries, looking for a correlation with an increase in share buybacks in a given month. I also run cross-sectional analyses to draw relationships between corporate governance characteristics and the propensity to execute buybacks. Ultimately, we examine whether American companies have shifted their preference from implementing share buybacks to distributing dividends following the implementation of the excise tax on revenue generated from share buybacks in 2023.

Using a main sample of 4,330 share buybacks executed by U.S. MNCs from January 2012 to December 2022, I find a positive correlation between the tax haven intensity and the buyback ratio of U.S. MNCs, indicating a more pronounced use of share buybacks by these companies. I also find a positive correlation between the buyback ratios of the companies and their free cash flow per share and their investment return, highlighting that the results are in line with the Free Cash Flow Hypothesis. The DiD analysis confirms the results, showing a more accentuated reaction to the U.S. tax legislation by companies with a significant presence in tax havens. For the DiD, I use share buybacks executed by Australian companies as a non-treated group, given the similarity of the economy with that of the United States but the small percentage of revenues that they raise in the U.S., rendering them largely unaffected by U.S. legislation. Australian companies increase the number of observations to 4,880. An additional panel data analysis using sales of U.S. stocks from residents in foreign countries highlights a more pronounced correlation between sales originally from tax havens and the amount of the average buyback ratio of the companies in the dataset, possibly indicating the presence of shareholders resident tax havens, namely countries with more incentives to receive money from share buybacks. Finally, additional analysis using data on corporate governance identifies a high propensity in executing share buybacks with companies characterised by management significantly compensated in stocks.

This study makes the following contribution. Initially, as far as we know, this research represents one of the first attempts to investigate the link between multinational corporations using tax haven subsidiaries and the financial management ability of a company. Past research has studied the effects of U.S. legislation on the execution of share buybacks but has never focused on the role of tax havens and their ability to foster the redistribution of profits to shareholders (Albuquerque, Bennett, Lisowsky, & Wang, 2024; Chang & Yang, 2023). By using two different measures of tax avoidance to account for the presence of MNCs in tax havens (low ETRs of MNCs executing share buybacks and the ratio between the number of subsidiaries of a MNC in tax havens and its total subsidiaries), I find robust results confirming our hypothesis, checking both for the method by which tax avoidance is accomplished and the outcome of engaging in extensive tax avoidance. Additionally, I strengthen our research by also considering the level of sales of U.S. stocks originating from tax havens, providing further evidence of frequent executions of share buybacks by U.S. companies exactly in the periods of major selling by residents in tax havens. Subsequently, I also consider the institutional environment of U.S. companies—following the approach of Richardson et al. (2020)—in order to consider the levels of corporate governance in the sample of the firms. Finally, I consider the new excise tax on share buyback revenues that took effect from the beginning of 2023, possibly being the first study to assess whether the legislation achieved its goal to reduce the tax gap incentive between dividends and share buybacks. Our findings offer a significant understanding of the potential benefits that multinational corporations may accrue through the use of their subsidiaries in tax havens. These advantages could result in increased buyback ratios, elevated earnings per share, and greater free cash flows. Consequently, our study holds considerable importance for MNC managers and policymakers, influencing their decisions concerning capital structure and strategies related to tax management when employing tax haven subsidiaries.

The remainder of this paper is organised as follows. Section 2 considers the theory and develops our hypothesis. Section 3 describes the research design and the data. Sections 4 and 5 report the empirical results. Section 6 concludes the paper.

2. Theory and hypothesis development

Companies have several reasons to choose to buy back their shares, especially if their shareholders have residencies in low-tax countries (Janský, 2022) or the management of the companies receive bonuses or part of their salaries in company stocks (Hemel & Polsky, 2021; Hemel, 2022).

2.1. Tax benefits linked to subsidiaries located in tax havens

As documented by Clausing (2009, 2016), Zucman (2014), the United States Joint Committee on Taxation (2014), and Tørsløv et al. (2020), it is estimated that profit shifting results in approximately one-fifth of the US corporate tax base being foregone. In a related line of inquiry, Guvenen et al. (2017) find that profit shifting leads to the underestimation of U.S. GDP and propose reallocating the missing corporate profits from a select few tax havens. While these studies primarily use data from the U.S. government's Bureau of Economic Analysis (BEA) survey of multinational corporation (MNC) data, Dowd et al. (2017) employ confidential corporate tax returns to affirm the significance of profit shifting. They demonstrate that reported profits are

significantly more responsive to tax rate fluctuations in low-tax jurisdictions compared to high-tax ones. Nevertheless, alternative datasets beyond those provided by the BEA, and their combinations, have so far been infrequently employed in the economic literature pertaining to US-based multinational corporations (MNCs).

2.2. Theory associated with the execution of share buybacks

According to the academic literature, four different theories can be considered the main drivers for companies to execute share buybacks: 1) to signal a change in the value of the company not yet priced by the market (signalling theory), 2) to take advantage of arbitrage opportunities (price support theory), 3) to avoid over-investment and mitigate agency problems (agency theory), and 4) to discourage potential acquirers from aggressive takeovers (takeover deterrence theory).

2.2.1. Signalling hypothesis

One popular explanation is the traditional signalling theory, which states that company managers can access information unavailable to the market. The theory posits that companies engage in share buybacks to convey positive signals to the market about their financial health and growth prospects. By repurchasing their own shares, companies aim to communicate valuable information to investors, influencing their perceptions and ultimately affecting the company's stock price (Dann, 1981; Vermaelen, 1981). Ikenberry et al. (1995) examined the relationship between share buybacks and subsequent stock price performance. The study found that companies executing share buybacks experienced positive abnormal returns following the announcement, suggesting that the market perceived buybacks as a positive signal. Similar research has been conducted by Cooper, Downes, and Rao (2017), who conducted an analysis of the relationship between share buybacks and subsequent earnings performance. The study revealed that companies engaging in share repurchases had better earnings performance in the years following the buyback announcement, supporting the notion that buybacks serve as a positive signal regarding future profitability.

2.2.2 Investment theory

In contrast to signalling theory, the investment hypothesis states that managers buy back shares when they are undervalued to take advantage of arbitrage opportunities (Rau & Vermaelen, 2002). In this case, the stock price does not fully adjust to the buyback announcement and remains a good investment for long-term shareholders. Companies executing share buybacks believe their stock is undervalued in the market due to temporary market inefficiencies, such as investor sentiment, information asymmetry, or market misinterpretation. Companies can exploit this mispricing by repurchasing shares and generating returns for shareholders. In support of this theory, Ikenberry et al. (1995) found that the market's initial reaction to the announcement is insufficient, causing a long-term increase in stock prices, leading to positive abnormal returns for the company over four years after the announcement. Stephens and Weisbach (1998) also discovered evidence of managers engaging in strategic behaviour that aligns with the investment hypothesis. Jagannathan (2000) examined the relationship between share repurchases and the cost of equity capital reduction. The study revealed that companies executing share buybacks experienced a decline in the cost of equity capital, indicating that buybacks helped align stock prices with their intrinsic values.

2.2.3 Free cash flow theory

Jensen (1986) provides an explanation for companies engaging in stock buybacks, which involves redistributing excess cash flow to shareholders. Agency theory suggests that management may prioritize their own interests over those of stockholders. This theory proposes that management might use excess cash flow for negative net present value (NPV) projects, which can decrease the company's value. In this scenario, if the negative NPV project generates profits, management may receive additional bonuses. On the other hand, if the project fails, the company incurs losses, but management does not suffer any personal consequences (Jensen & Murphy, 1990)

Consequently, agency theory suggests that having financial slack can lead management to exploit stockholders' wealth through the wasteful use of company resources or personal perks. The conflict of interest between management and stockholders highlights how excess cash flow can exacerbate agency problems. This issue becomes particularly significant for companies with large cash flow, excess funds, but limited growth opportunities. Neglecting the agency problem can result in discounted stock prices. Therefore, utilizing stock buybacks as a means to distribute excess cash flow, in the form of dividend pay-outs, can significantly modify risks and incentives for all financial stakeholders. In other words, stock buybacks can be considered a partial solution to the agency problem. As suggested by Jensen (1986), companies should aim to minimize the amount of free cash flow under management control to avoid stock price discounts. Stock buybacks reassure investors that the company does not invest in negative NPV projects and utilizes excess cash flow to benefit stockholders.

However, Grullon and Michaely (2000) found that the market responded more positively to companies that showed a willingness to invest. This implies that distributing excess cash flow to mitigate agency problems can limit investment opportunities, resulting in a substantial decline in stock prices. The free cash flow hypothesis provides clear predictions regarding corporate financial and investment policies. Companies that engage in over-investment are expected to receive unfavourable market responses upon the announcement of new investment plans, as demonstrated by empirical evidence from Lang, Stulz, and Walking (1991). Moreover, negative abnormal returns are expected after the announcement of new funding, such as equity offerings, as the funds could potentially be misused by management. However, empirical evidence regarding this expectation is mixed (Denisa 1994; Lang, Poulsen, & Stulz, 1995). Conversely, for companies engaged in over-investment, distributing funds through dividends or stock buybacks is expected to benefit stockholders by preventing the misuse of corporate funds (Lang & Litzenberger, 1989).

2.2.4. Takeover deterrence theory

The takeover deterrence hypothesis explores an external motive related to stock buybacks. Several studies, including Brown and Ryngaert (1991) and Bagwell (1992), have documented an upward-sloping supply curve and the presence of stockholder heterogeneity. This means that as a potential target company engages in stock buybacks, the cost of acquiring its stocks increases. This is because stockholders tend to sell their stocks with the lowest reserve values. Thus, stock buybacks can act as a defence mechanism against takeovers by raising the lowest available stock price (Bagwell, 1991).

Companies facing potential takeover risks are more inclined to execute stock buybacks. Harris and Raviv (1988) and Stulz (1988) demonstrate how companies defend against takeover attempts by issuing new debt to conduct stock buybacks. Bagnoli and Lipman (1989) find evidence that tender offers are used to deter takeovers, impacting a company's value. Billett and Xue's (2006) study establishes a positive relationship between open market stock buybacks and the likelihood of takeovers. However, Dittmar's (2000) study finds no evidence to suggest that takeovers motivate companies to engage in stock buybacks.

Hirshleifer and Thakor (1992) present a model wherein corporate managers borrow from banks, increase the leverage ratio through stock buybacks, and distribute cash to current stockholders. This reduces the company's free cash flow, corporate value, and potential gains for the acquiring company (Bhargava, 2010). Open market buybacks are highly flexible and can respond quickly, making them potentially advantageous for takeover deterrence.

2.3. Management ability

Management's impact on firm performance is a key research topic in economics, finance, accounting, and management (Harris & Holmstrom, 1982; Rose & Shepard, 1997; Hermalin & Weisbach, 1998; Bertrand & Mullainathan, 2003; Bertrand & Schoar, 2003; Malmendier & Tate, 2005; Perez-Gonzalez, 2006; Silva, 2010). Many studies use Data Envelopment Analysis (DEA) to evaluate managerial skills within specific industries. For example, Murthi et al. (1996) use DEA to study consumer goods, while Barr and Siems (1997) and Leverty and Grace (2012) apply DEA in banking and insurance, finding that better managers lower bankruptcy risk. Murthi et al. (2007) link mutual fund efficiency to managers. DEA models vary by industry: Murthi et al. (1996) use product quality and price as inputs and market share as output; Leverty and Grace (2012) use labor and real loss values.

With regard to the intersection between management ability and profit shifting, research on profit shifting highlights three HQ-level actions: debt shifting (Desai et al., 2004; Huizinga et al., 2008), transfer pricing (Cristea & Nguyen, 2016; Davies et al., 2018), and patent location (Dischinger & Riedel, 2011). Debt shifting involves MNE subsidiaries in high-tax countries borrowing from those in low-tax countries, reducing overall tax liability by deducting interest payments in high-tax areas and taxing them at lower rates in low-tax areas. Predictable income streams make debt shifting effective, as clear profit forecasts help optimize debt amounts, avoiding negative profits and maintaining shareholder perception. Limits on low-tax subsidiary lending exist to prevent risky investments and potential bankruptcy (Bilicka, Scur, 2021).

2.4. Share buybacks in the U.S.

Looking more specifically at the U.S., the impact of taxation on investment and capital structure decisions has received considerable attention in the past four decades. Many studies have investigated the effect of taxation on a company's choice between paying dividends or repurchasing shares. Brown (1988) focused on the relationship between capital gains and share repurchases and noted that previous research ignored the impact of capital tax rates. He pointed out that only shareholders participating in a tender offer are subject to capital gains tax when a company returns cash to shareholders. Anderson and Dyl (2004) believed that taxes are a hindrance in the

market that can lead to inflexible share prices. They examined capital gains tax as a factor contributing to the variation in investors' minimum acceptable share prices. The results showed that the variables related to taxes were statistically significant, indicating that capital gains taxes further exacerbate the fundamental inflexibility of the supply curve. Some scholars argue for more restrictive regulations on share buybacks, such as limits on the timing, size, or pricing of buyback programs. Cremers and Sepe (2005) discuss the potential benefits and drawbacks of imposing restrictions on share buybacks to prevent market manipulation and excessive use of corporate funds. Other scholars instead indicate just the lack of transparency as the main problem of the buybacks schemes, emphasizing the importance of comprehensive and timely disclosure to address information asymmetry concerns and facilitate informed decision-making by shareholders (Dittmar & Field, 2015) (Chemmanur & Yan, 2018).

The U.S. government's recent tax reform (TCJA) in 2017 has also fostered new research on the topic. Chang and Yang (2023) documented an increase in buyback usage following the increase in free cash flow given by the tax cut legislated in the reform. Laplante and Nesbitt (2017) and Foley et al. (2007) made arguments related to the effect of the tax reform on trapped cash abroad, sustaining a positive effect in increasing the amount of trapped cash abroad returning to the U.S. due to the lower tax rate applied for unrepatriated earnings.

2.5. Hypothesis development

Generally, multinational corporations (MNCs) utilize tax haven subsidiaries to achieve considerable tax savings and bolster their after-tax cash flows (Levin, 2012; Gravelle, 2013; Global Tax Evasion Report 2024, 2023). This practice is likely to be seen positively by MNCs as it demonstrates their capacity to remain profitable and reward their shareholders. Additionally, shareholders of U.S. MNCs resident in tax havens can enjoy a lower or absent capital gain tax on the profits derived by share buybacks, which would motivate them to prefer this pay-out mechanism. On the other hand, a lower effective corporate tax rate and capital gains tax rate may not be a significant driver for the pay-out decision of MNCs. Other elements can play a significant role in choosing the pay-out policy of the company, such as the overall level of company debt, current stock market trends, and risk assessments associated with reduced financial flexibility (Dittmar, 2000; Grullon & Michaely, 2000; Bagwell, 1991). Given the uncertainty regarding how much the use of tax haven subsidiaries by MNCs is correlated with the execution of share buybacks, I propose the following hypothesis:

H1. The use of tax haven subsidiaries by MNCs is associated with more execution of share buybacks and with an increase in the management score of the company.

3. Data and regression model

3.1. Sample construction and data

I create our sample by combining multiple databases, including MarketBeat, Thomson Reuters LPC DealScan, Compustat, the OECD-UNSD Multinational Enterprise Information Platform, the 10K of each company and stock transaction data from the U.S. Treasury. I select multinational corporations (MNCs) with adequate data to evaluate our hypothesis. Our final share buyback database consists of 4,330 executions for 542 different MNCs spanning the period from January 2012 to December 2022. Our primary source is MarketBeat, a financial

database with a complete list of share buybacks executed from 2012 onwards. The database supplies data on the company announcing the buyback, the action date, the amount reported, and the share price before and after the share buyback announcement. Data on MNC-level subsidiary locations are taken directly from the 10k of each company, which in this case have been collected one by one, creating a new dataset not available anywhere else. Data on the management score for the single firms is taken from Demerjian et al (2012), who made their dataset available for public use online, updated for the year 2022. Data on the sales of U.S. stocks by foreign countries are taken from the U.S. Treasury website, looking at the same period (2012-2022) for which I have data on buybacks. Table 1 reports the classification of the sample industry distribution based on the categories delineated by the FTSE Russel ICB (Industry Classification Benchmark). Among the 4,330 observations, the sample highlights a more significant proportion of MNCs working in the Financials (21%), Consumer Discretionary (19%), Industrials (19%), Technology (13%) and Healthcare (7%). Given the different sectors where the MNCs operate, the sample does not seem biased towards one specific area.

The Australian data on share buybacks used for the DiD are taken from Morningstar, totalling 550 observations over the period 2013-2022; data for 2012 was not present. The decision to use Australian data was taken given the availability and suitability of Australian companies' data for the analysis; the most complete datasets of share buybacks commercially available after the U.S. are the Australian and the Canadian datasets. However, Canadian companies present a large share of their revenues made in the U.S., rendering them overly influenced by the U.S. tax legislation considered in this study and therefore a less effective non-treated variable. Australian companies present a much smaller share of their revenues in the U.S., thus making them a better option to test our hypothesis.

(Insert Table 1 here)

3.2. Variables

3.2.1 Dependent variable and independent variable

Our dependent variable for the main panel data analysis is buyback spread (*BUYBACK_SPREAD*). Consistent with previous research (Weisbach, 2011; Harford & Klasa, 2013), I quantify *BUYBACK_SPREAD* as the natural logarithm of the buyback ratio that a company announces in year t , more specifically designed as the spread above the average buyback ratio within the sample of companies analysed. The main dependent variable used in the study is *THAV*, defined as the tax haven intensity usage of MNCs. Based on studies by Tørsløv, Wier, and Zucman (2018), Devereux, Griffith, and Klemm (2004), Jansky (2022), and Huizinga and Laeven (2008), I correlate a high usage of tax havens with a low corporate effective tax rate. ETRs (Effective Tax Rates) serve as a useful metric for governments to assess the amount of corporate taxes paid by individual companies, as well as to evaluate the average tax payments across sectors or within an entire economy. Policy proposals often rely on ETRs for both evaluation and establishment purposes. For instance, the 2017 tax reform in the United States introduced a global minimum ETR for multinational corporations (MNCs) as a fundamental component (Clausing, 2020). Additionally, the OECD (2019) suggests implementing a minimum ETR on MNCs' profits in response to the digitalization of the economy. Similarly, Dowd et al. (2017) and Tørsløv, Wier, and Zucman (2020) use ETRs to estimate the extent of profit shifting by MNCs. Additionally, drawing on previous studies by Desai et al. (2006a), Desai and Dharmapala (2009a), and Akamah et al. (2018), *THAV* is also computed as

the total number of subsidiaries incorporated in jurisdictions recognised as tax havens by the OECD (2006), divided by the total number of subsidiaries in the previous year ($t-1$). In this way, THAV serves as a direct measure of the extent to which a MNC utilizes tax haven subsidiaries and indicates the level of complexity and opacity associated with its foreign business operations related to tax havens (Desai et al., 2006a; Desai & Dharmapala, 2009a; Akamah, 2018). To identify the presence of significant tax haven activities among the multinational corporations in our sample, I use information from Exhibit 21 of their 10-K annual reports. This exhibit provides details on the MNC's subsidiaries and their countries of incorporation (Dyreng & Lindsey, 2009). Other important independent variables used are MA_SCORE_2022 and THAV* MA_SCORE_2022, which represent the management score given to every firm for the year 2022 and the interactive variable between the management score and the variable THAV. As described in Demerjian et al. (2012), the score has the objective to measure the revenue generating capacity of the firm thanks to its management ability. The way the score is composed is based on multiple revenue generating resources (cost of inventory, general and administrative expenses, fixed assets, operating leases, past research and development (R&D) expenditures and intangible assets). Revenue is the only metric used to measure output. The authors define a competent management team as one that maximizes revenue from a specific set of inputs. The inputs considered in the revenue generation process are: Net Property, Plant, and Equipment (PP&E); Net Operating Leases; Net R&D; Purchased Goodwill; Other Intangible Assets; Cost of Inventory; and Selling, General, and Administrative Expenses (SG&A).

3.2.2. Control variables

We incorporate several variables into our regression model to account for corporation characteristics influencing the buyback ratios. In our analysis, corporation characteristics are represented by the following variables: free cash flow (*CASHFLOW*), return on investment (*INVESTRETURN*), corporation size (*SIZE*), leverage (*LEV*), tangible assets (*TANG_ASSETS*), cash holdings (*CASH_HOLD*), return on assets (*ROA*), market-to-book ratio (*MKTBK*), sales growth (*SALES_GROWTH*), earnings per share (*EPS*), dividend per share (*DIVIDENDPERSHARE*), price to earnings ratio (*PE*), and the ratio between debt to equity (*DEBT_TOEQUITY*). *CASHFLOW_{it}* represents the free cash flow of one firm in a given year for each share of the firm present on the stock market. *INVESTRETURN_{it}* is defined as the difference between the return on invested capital (ROIC) and the weighted average cost of capital (WACC), multiplied by the invested capital (see Appendix A for the formula). A higher free cash flow and return on capital for a company is normally associated with a higher profitability, resulting in a higher incentive to execute pay-out policies such as share buybacks according to the free cash flow hypothesis (see section 2.2.3.). *SIZE* is measured as the natural logarithm of total assets; larger corporations are expected to have easier access to external financing and higher profitability, granting them more possibilities to execute pay-out policies (Graham et al., 2008). *LEV* is measured as the sum of short- and long-term debt scaled by the market value of the MNC. *TANG_ASSETS* is measured as net property, plant, and equipment scaled by total assets, and it is anticipated to be negatively associated with a higher presence in tax havens, and therefore positively associated with a higher buyback ratio (Lazonick, 2014). *CASH_HOLD*, measured as cash and marketable securities scaled by total assets. *ROA*, representing the ratio of operating income to total assets, is predicted to be negatively associated with the buyback ratios as profitable corporations are correlated with intense use of tax havens (Jansky, 2022). *MKTBK*

is the market value of equity scaled by the book value of equity. *SALES_GROWTH*, measured as the percentage growth of sales from two years prior to the year preceding the buyback execution, is expected to have a negative association with the buyback ratios (Lazonick, 2014). *EPS*, represented by the portion of a company's income available to shareholders and allocated to each outstanding share of common stock, is anticipated to be negatively associated with the buyback ratios due to the correlation between higher EPS for a company and the decrease in shares available in the market after a buyback.

Our regression model incorporates additional corporation characteristics to account for potential elements enhancing the propensity to execute share buybacks. These characteristics include corporate transparency (Aabo et al., 2015; Akamah et al., 2018), information asymmetry (Diamond & Verrecchia, 1991; Kim & Verrecchia, 1994; Zhang, 2006) and repatriation/trapped cash (Foley et al., 2007; Laplante & Nesbitt, 2017). Transparency is measured by the number of unique business segments (BSEG) in an MNC, and a positive association is expected between transparency and the buyback ratio (Akamah et al., 2018). Information asymmetry is captured by the dispersion in analysts' forecasts (DISP) and the level of a corporation's financial information/earnings quality represented by discretionary accruals (DISC_ACC). DISP is measured as the average monthly dispersion of analyst forecasts, and DISC_ACC follows the method developed by Dechow and Dichev (2002). Both DISP and DISC_ACC are expected to be positively associated with the buyback ratio (Diamond & Verrecchia, 1991; Zhang, 2006).

Repatriation/trapped cash is assessed through the repatriation cost (REPAT), which is computed as the difference between the U.S. statutory tax rate and foreign tax rate ($0.35 - \text{TXFO/PIFO}$) in the previous year. REPAT serves as an indirect proxy for the amount of cash held by MNCs overseas due to repatriation tax costs, as the actual amount of unremitted foreign earnings is often not disclosed in annual reports and not observable for most corporations (Laplante & Nesbitt, 2017). Finally, I include year fixed effects (YEAR_FE) in our regression model to control for changes in general market conditions over time. YEAR_FE is measured as a dummy variable, coded 1 if the year falls within the specific year category, and 0 otherwise. No sign predictions are made for YEAR_FE.

3.3 Regression Model

The methodology section is divided into 2 parts: the first is related to computation of the correlation between share buyback intensity and U.S. multinational subsidiaries in tax heavens. The second is related to three difference-in-difference analyses.

For the first estimation, in order to account for potential time-invariant correlated omitted variables in our regression model, I use a firm fixed effects (FFE) panel regression analysis (Wooldridge, 2010). I employ this approach to investigate the relationship between tax haven intensity and the buyback ratio using our corporation FFE panel regression model, which is estimated as follows:

$$\text{BUYBACK_SPREAD}_{it} = f(\text{THAV}_{it-1} + \text{MA_SCORE_2022}_{it} + \text{MA_SCORE_2022} * \text{THAV}_{it} + \text{CORPORATION_CHARACTERISTICS}_{it} + \text{YEAR_FE}_{it} + \varepsilon_{it})$$

The dependent variable *BUYBACK_SPREAD* is quantified as the natural logarithm of the buyback ratio that a company announces in year *t*, more specifically designed as the spread above the average buyback ratio within the sample of companies analysed. The buyback ratio itself is calculated by dividing the total cash spent by a company to repurchase its common shares in the previous year by its market capitalisation at the start of the buyback period. The independent variable *THAV* represents the tax haven intensity and is quantified using two methods. The first method counts the total number of corporations included in the list of tax havens composed by the OECD scaled by the total number of subsidiaries in year *t-1*, as used in Richardson et al (2020) (identified as *THAV_(SUB)*). The second method calculates the effective tax rate (ETR) of each company, considering a lower ETR as a proxy for more intense use of tax havens by the company (identified as *THAV_(ETR)*). The methodology used to calculate the ETR of each company follows the same approach as Janský (2022), using unconsolidated data from Eikon and calculating the ratio between corporate income tax and profits. *MA_SCORE_2022* represents the management score at the firm level, with also the inclusion of the interactive variable *THAV*, developed in order to account for the joint effect of the two variables. In addition to this, I also included additional variables in our regression model to control for other effects on the buyback ratio that pertain to *CORPORATION_CHARACTERISTICS* in year *t-1*. *YEAR_FE* dummies are also included in our regression model as time fixed effects. Finally, ε_{it} denotes the error term. Variable definitions are given in Appendix A.

4. Results

4.1 Summary statistics

Table 2 outlines the descriptive statistics of all the variables used in the regression model.

ETRBYCOMPANY has a mean of 8% (with 0.067 of standard deviation), which is lower than the national level compared to past research (Garcia-Bernardo & Janský, 2022). *BUYBACK_SPREAD* and *BUYBACK_RATIO* have a mean of 4% (0.133 of SD) and 8% (0.135 of SD) respectively, in line with research on buyback ratios from 1998 to 2018 by Standard and Poor's (S&P Global, 2020). Most of the other variables used to account for corporate characteristics are the same as those used in the past research Richardson et al (2020) and Graham et al. (2008), and the results are similarly in line with their results. Table 3 presents the average buyback ratios by year for U.S. companies, key industries, and Australian companies. It highlights peaks in the financial sector and lower ratios in the retail sector and among Australian companies, suggesting different capital management strategies or shareholder preferences. The results also highlight an overall increase in the buyback ratios across all the sectors.

(Insert Table 2 here)

The Pearson correlation results are shown in Table 4. I find a significant positive correlation between ETRBYCOMPANY and *BUYBACK_SPREAD*. Furthermore, Table 3 reports substantial correlations between several corporation characteristics (*SIZE*, *TANG_ASSETS*, *CASH_HOLD*, *ROA*, *MA_SCORE_2022*) and *BUYBACK_SPREAD*. Table 4 shows that only moderate levels of collinearity exist between the explanatory variables (see Hair et al., 2006).

(Insert Table 3 here)

(Insert Table 4 here)

4.2 Regression Results

The results of the FFE panel regression analysis of the association between the use of tax haven subsidiaries by MNCs and the buyback ratio spread shown in Table 5 further develop our hypothesis. The table presents the regression results obtained by entering the corporation's characteristic control variables into the regression model. I find that the coefficient for THAV_(ETR) is significantly negatively associated with BUYBACK_SPREAD ($p < .02$). I also observe that some of the corporation characteristic coefficients (SIZE, TANG_ASSETS, SALESREVENUES_GROWTH, DEBT_TOEQUITY) are significantly associated with BUYBACK_SPREAD in our regression model. The lower the ETR, the higher the tax haven presence of the MNC. In this sense, a negative correlation between the ETR and the buyback spread suggests a positive correlation between the use of tax havens and the amount of buybacks executed by the MNC. A 1% increase in the ETR represents a reduction of the buyback spread of 1.58% (i.e., a 1.58% increase in the spread if there is a 1% reduction in the ETR and therefore an increasing presence of the MNC in the tax haven).

MA_SCORE_2022 * THAV also shows a decently strong correlation with BUYBACK_SPREAD around 7% with a significant p-value, with the MA_SCORE_2022 also showing a significant correlation. In line with our initial assumptions, the results suggest that MNCs are pricing the potential benefits of using tax haven subsidiaries into a more intense use of buybacks. Furthermore, the results show the impact of the management ability within the firm in terms of its ability to take advantage of tax loopholes and execute more buybacks, thus confirming our initial hypothesis.

(Insert Table 5 here)

To further strengthen our study with additional evidence, I run the same panel regression using THAV_(SUB) as the main independent variable (table 6). As expected, the correlation between THAV_(SUB) and the buyback spread is positive and statistically significant, indicating that a higher number of subsidiaries of the MNC present in a tax haven are significantly correlated with a higher buyback ratio. The rest of the control variables do not differ consistently from Table 5, signalling the robustness of the approach, including also the MA_SCORE_2022 and the interaction with the variable THAV. Finally, in Table 7, I run the same regression only differentiating between companies with at least one subsidiary in a tax haven as a robustness check (variable THAV_(TAXHAVENS)). Here I note an even more significant result compared to the other regressions in terms of the buyback spread and the presence in tax havens, and also regarding the SIZE of the companies, their ROA, and their INVESTRETURN.

(Insert Table 6 here)

(Insert Table 7 here)

As previously stated, to check for shareholders' preference for receiving money from share buybacks, I use data from the U.S. Treasury on sales of U.S. stocks by month and the country where the sales originated. I use total sales of U.S. stocks by country of origin because the dataset lacks information on the residence ownership of the companies' stocks. Recognising the impossibility to check directly which companies have more investors resident in tax havens, I use aggregate data on all U.S. stocks sold every month from entities residing in each country available in the U.S. Treasury dataset. I run the regression with the average monthly buyback ratio of the companies in our dataset in addition to the monthly change in price of the S&P 500 and its monthly average EPS and PE, ultimately running the regression by 3 groups (Tax havens, EU + Canada, and Hong Kong + Japan). The UK and the Cayman Islands result as the main brokerage hubs for U.S. stocks outside the U.S. The rationale is straightforward: if sales from tax havens increase as the average buyback ratio and exceed the average change in the S&P 500, this suggests that more stocks are being sold by investors or subsidiaries in tax havens. This indicates a higher concentration of share buybacks in tax havens, likely motivated by the tax advantages they offer.

Table 8 shows the results just described: the 2018-2019 period is the one where the correlation is stronger, possibly as a consequence of the U.S. tax cut at the end of 2017. Generally, stocks sold from tax havens appear to be more correlated with an increase in the buyback ratio of the companies, also showing an even stronger correlation compared to the one with the changes in the S&P500. This may indicate that the sales are not motivated by market changes but more by the choices of individual companies.

(Insert table 8)

4.2 Robustness check: difference-in-difference checks for endogeneity

I further consider the issue of endogeneity by performing a difference-in-differences (DID) analysis (Roberts & Whited, 2013) with and without propensity score matching (PSM) (Wilde, 2017). I run two DiD treatment analyses using different control groups to verify the intensity of tax haven use by MNCs?. In the first DiD, I draw on the implementation of the tax cut from 35% to 21% in the U.S. at the end of 2017 and the consequent rise in investments and share repurchases by U.S. companies. Hanlon et al. (2019) found that, in their earning calls with investors, 22% of companies in the S&P 500 reported an increase in revenues and buyback repurchases due to the TCJA, an exogenous event that has likely affected the use of tax havens by U.S. MNCs. I expect companies with more presence in tax havens to take advantage of the increase in revenues and execute more buybacks due to this reform. The following regression model is estimated:

$$BUYBACK_SPREAD_{it} = f(TREATMENT_{it} + TREAT_{POSTit} + TREATMENT * TREAT_{POSTit} + CORPORATION_CHARACTERISTICS_{it} + \varepsilon_{it})$$

To execute the DiD, I build 2 dummy variables ($TREATMENT_{it}$) for MNCs with ETRs below a certain threshold in order to observe changes in the treatment effect of the lower ETRs present in the sample of companies (variable is coded 1 if the company has a lower ETR than the threshold and 0 if it has not). The two

thresholds correlated with the two dummy variables are above 10% and below the 10% ETR. An additional dummy variable to use as a treatment group is coded 1 if the company has at least one subsidiary in a tax haven with a lower capital tax rate than the one present in the U.S. (21%). The time variable is $TREAT_{POSTit}$ and is used to treat apply the treatment only affected by the tax reform after 2017, dividing the sample effectively into two periods: the one before the reform (2012-2017) and the one after (2018-2022). Finally, I create an interaction variable by multiplying TREG_POST and TREATMENT (TREG_POST*TREATMENT) to measure the disparity in the buyback spread between the treatment and non-treatment groups after 2017. Two different ETR thresholds (above 10% , below 10%) are used to observe possible changes in the results, and the PSM is used as an additional robustness check. The results in Table 9 represent the first DiD accounting for the increase in corporate profits derived from the tax cut in the U.S. in December 2017. The results indicate that a low ETR of the company correlates significantly with a rise in buyback spreads, thus suggesting a more pronounced use of buyback schemes by MNCs with more presence in tax havens as a consequence of the 2017 tax cut, as shown especially by the TREG_POST result (above 18% increase)

I then run the second DiD regression using the repatriation costs (RC) of each company as a treatment effect, setting the threshold below the corporate income tax rate in the U.S. present at the moment the buyback is executed (i.e., below 35% before Dec 2017 and below 21% afterwards). Since the implementation of the TCJA, a “US corporation can defer foreign income by retaining earnings indefinitely through a foreign subsidiary. Upon repatriation, the earnings would be subject to US taxation at a rate up to 35 per cent, with a credit for foreign taxes paid” (Gravelle, Jane & Marples, 2018). The new legislation could have possibly fostered a stronger usage of share buybacks by U.S. MNCs in order to keep earnings abroad and avoid the 35% taxation rate. To account for this effect, instead of the ETR threshold used in the previous DiD, I use a different treatment effect ($TREATMENT_{it}$) represented by the ratio repatriation/cash trapped as repatriation cost, calculated following Laplante and Nesbitt (2017). I compute the difference between the U.S. statutory tax rate and foreign tax rate ($0.35 - TXFO/PIFO$) in year $t-1$. If the foreign tax rate is greater than 0.35, REPAT is set to zero. MNCs with negative foreign tax expense (TXFO) are set to 0.35 and MNCs with foreign losses (PIFO) are set to missing. The threshold of the ratio repatriation/cash trapped used in the DiD analysis is set below the corporate income tax rate in the U.S. present at the moment the buyback is executed (i.e., below 35% before Dec 2017 and below 21% afterwards).

The results are summarised in Table 10. The coefficients for all the interaction terms are significantly negatively associated with BUYBACK_SPREAD for the threshold above 10% and between 10% and 0%, indicating a positive effect of the repatriation tax in attracting back capital with lower repatriation costs compared to the ordinary taxation in the U.S. Contrary, the result for the companies with a negative RC is not as significant, possibly implying the negative trade-off that repatriating their profits would represent for these companies.

(Insert Table 9 here)

(Insert Table 10 here)

Figure 1 and 2 show graphically the DiD analysis, highlighting the year 2017 as a point of interest for the change in the trend of the buyback spreads. Figure 3 shows the same results but uses *INVESTRETURN* as the variable to classify the groups. The end of year 2017 appears to represent a point of change for the buyback spreads of the companies, observing its increase across every chart.

(Insert Figure 1 here)

(Insert Figure 2 here)

(Insert Figure 3 here)

5. Additional analyses

In this section, I examine various channels that could influence the buyback ratio of MNCs when they use tax haven subsidiaries. To explore the impact of these channels on the connection between the intensity of tax havens and the buyback ratio of the MNCs, I conduct cross-sectional analyses. The main two channels used are corporate governance, CEO compensation and wealth. Additionally, I analyse the impact of the excise tax on share buyback revenues enacted by the Biden administration, checking the propensity of the companies to execute dividends instead of share buybacks after the reform.

5.1. Corporate governance channel

The impact of corporate governance attributes on the relationship between the use of tax haven subsidiaries by MNCs and the buyback ratio can be significant. For example, board quality, represented by the proportion of independent directors (*IND_DIR*) and board size (*BRD_SIZE*), as well as institutional ownership (*INST_OWN*), can play a role. MNCs are classified as having high or low corporate governance attributes (*IND_DIR*, *BRD_SIZE*, and *INST_OWN*) based on whether they fall above or below the median values in the respective distributions.

In their study, Dittmar and Mahrt-Smith (2007) investigate the connections between corporate governance mechanisms and share repurchases. The authors argue that effective corporate governance mechanisms can influence how firms allocate their cash resources and make decisions regarding share repurchases. They hypothesise that firms with stronger corporate governance practices are more likely to use their excess cash through share repurchases, increasing firm value. The authors use a sample of U.S. firms to test their hypotheses and examine various corporate governance measures, such as board independence, board size, ownership concentration, and CEO duality. They also consider firm-specific factors and industry characteristics that may affect cash holdings and share repurchase decisions. The empirical analysis reveals several key findings. Firstly, firms with stronger corporate governance, characterised by a higher proportion of independent directors on the board, tend to have lower levels of cash holdings. This suggests that effective governance mechanisms encourage firms to deploy excess cash for value-enhancing purposes rather than holding it idly. Additionally, in another study conducted by Bagella, Becchetti, and Carpentieri (2016) the authors observe the relationship between corporate governance, ownership structure, and pay-out policy of firms, examining the impact of

ownership concentration and the presence of block holders on pay-out policy choices. The empirical analysis in the paper reveals several key findings. Firstly, the study finds that firms with larger boards and higher levels of board independence are more likely to distribute dividends. This suggests that stronger corporate governance practices, characterised by larger and independent boards, are associated with a higher propensity to pay-out dividends to shareholders. Secondly, the authors find that ownership concentration significantly impacts pay-out policy choices. Specifically, firms with higher ownership concentration, where block holders exert greater influence, are likelier to engage in share repurchases rather than pay dividends. This indicates that concentrated ownership structures and the presence of block holders play a role in shaping pay-out policy decisions. The study suggests that corporate governance practices, such as board characteristics and ownership structure, influence pay-out policy decisions. Firms with stronger governance practices, larger boards, and higher board independence are more likely to pay dividends. On the other hand, ownership concentration and the presence of block holders are associated with a preference for share repurchases.

Table 11 presents the regression results for the corporate governance attributes. Regarding the board attributes, the coefficient of THAV_(ETR) shows a significant positive association with the buyback ratio in the high IND_DIR subsample ($p < .10$), but it is not statistically significant in the low IND_DIR subsample. For BRD_SIZE, the coefficient of THAV exhibits a significant positive association with the buyback ratio in the high BRD_SIZE subsample ($p < .05$), while it is not significant in the low BRD_SIZE subsample. Lastly, for the institutional stock ownership attribute, the coefficient of THAV shows a significant positive association with the buyback ratio in the high INST_OWN subsample ($p < .10$), but it is not significant in the low INST_OWN subsample. The result aligns in great part with the study by Mittmar and Mahrt-Smith (2007).

(Insert Table 11 here)

5.2. CEO compensation and wealth, and alignment of shareholders' and managers' interests

Attributes related to CEO compensation, corporation-related wealth, and managerial ability can influence the relationship between MNCs' use of tax haven subsidiaries and the buyback ratio. These attributes include the alignment of managers' and shareholders' interests, represented by delta (DELTA) (Daniel et al., 2004; Coles et al., 2006), bonuses (BONUS) (Billet et al., 2010) and CEO corporation-related wealth (WEALTH) (Ortiz-Molina, 2006; Daniel et al., 2013) (see Appendix A for variable definitions). MNCs are classified as having high or low attributes in CEO compensation and wealth (DELTA, BONUS, and WEALTH). According to Jensen and Meckling (1976), if executive compensation aligns solely with the interests of shareholders and managers, managers may be incentivised to undertake risky investments. This is because equity-based incentives, such as stock options, often increase in value with the riskiness of a corporation's assets. While successful risky investments benefit shareholders, creditors bear the cost when such investments raise the probability of default (Jensen & Meckling, 1976).

Previous research has examined the alignment of managers' and shareholders' interests, proxied by delta (e.g., John & John, 1993; Daniel et al., 2004; Coles et al., 2006). Higher delta levels indicate managers who work

harder or more effectively as they share gains and losses with shareholders. However, higher delta levels incentivise managers to invest in riskier assets and engage in more aggressive debt planning (Coles et al., 2006). John and John (1993) establish theoretically that higher delta levels lead to debtholders demanding higher returns. They demonstrate that as managers' incentives align more with shareholder value (delta), the risk-shifting incentives increase, leading to a higher risk premium demanded by debtholders. Bona-Sánchez and Pérez-Alegría (2015) investigated whether CEO compensation influences the decision of firms to engage in share repurchases. They hypothesise that CEOs with higher compensation may be incentivised to use share repurchases to enhance firm value and align their interests with shareholders. The empirical analysis in the paper reveals several key findings. Firstly, the study finds a positive association between CEO total compensation and share repurchases. Firms with CEOs receiving higher levels of total compensation are more likely to engage in share repurchases, suggesting that higher CEO pay is associated with a preference for using this mechanism to return value to shareholders. Secondly, the authors find a positive relationship between equity-based CEO compensation and share repurchases. Firms with CEOs receiving a larger proportion of their compensation through equity-based incentives, such as stock options or restricted stock, are more likely to undertake share repurchases. This indicates that CEOs with greater exposure to equity-based incentives have stronger motivations to use share repurchases to enhance shareholder value. Billet, Flannery, and Garfinkel (2006) explored the impact of bonus schemes on accounting decisions made by managers within firms. The authors find that the relationship between bonus schemes and earnings management is more pronounced when the weight assigned to accounting performance in the bonus calculation is higher. This indicates that the magnitude of the bonus tied to accounting measures plays a role in motivating managers to manipulate earnings. It also finds that firms with higher financial leverage and lower monitoring mechanisms, such as institutional ownership or board independence, exhibit a stronger association between bonus schemes and earnings management. These factors amplify the influence of bonus schemes on accounting decisions. Jensen and Murphy (1990) examine the impact of performance-based pay on the incentives of top management. The study explores the impact of performance-based pay on managerial risk-taking behaviour. It finds that performance-based incentives can motivate managers to undertake riskier investment projects, as their potential rewards are tied to the outcomes. This highlights the trade-off between aligning incentives with performance and the potential for increased risk-taking.

Table 12 presents the regression results for the alignment of shareholders' and managers' interests, CEO compensation, and corporation-related wealth attributes. The coefficient of THAV_ETR shows a significant association with the buyback ratio in the high DELTA subsample. Still, it is not statistically significant in the low DELTA subsample. Furthermore, the coefficient of THAV_ETR shows a significant positive association with the buyback ratio in the high BONUS subsample ($p < .05$). At the same time, it is not significant in the low BONUS subsample. Additionally, the coefficient of THAV_ETR is significantly positively associated with the buyback ratio in the high WEALTH subsample ($p < .10$). Still, it is not significant in the low WEALTH subsample. The results are aligned with the studies of Billet, Flannery, and Garfinkel (2006) and Bona-Sánchez and Pérez-Alegría (2015).

In summary, the cross-sectional analyses indicate that the positive association between MNCs' use of tax haven subsidiaries and the buyback ratio is more pronounced in environments with poor corporate governance, high CEO pay-for-performance, and corporation-related wealth.

(Insert Table 12 here)

5.3. Excise tax on share buyback revenue

I now examine companies' reaction to the new U.S. legislation imposing a 1% excise tax on revenues from share buybacks (effective from 1 January 2023). One of the aims of this legislation was to partially close the tax advantage gap enjoyed by U.S. companies between executing share buybacks and executing dividends—an advantage estimated to be 12.3% in the effective tax rate (Wharton Upenn, 2023)—and thereby push U.S. companies towards executing more dividends. To check for this effect, I run a panel regression similar to that executed in Section 4 but using the dividend-per-share ratio of the companies as the dependent variable and the buyback ratio as one of the independent variables, comparing the two years before the reform and year 2023. For the moment, the results in Table 13 do not suggest an important change in the preference of companies as to how to distribute profits to their shareholders. The results from 2023 do not show any inclination towards executing dividends, and the control variables do not indicate important reactions from specific companies in the sample, suggesting, at least for the moment, a lack of effect from the reform.

(Insert Table 13 here)

6. Conclusion

This study examines whether MNCs' use of tax haven subsidiaries is associated with the usage of share buybacks and with the improved ability of management to generate revenues. MNCs' more intensive tax haven use is positively related to using share buybacks and also with a management score I used to define the management ability level of one firm. Our cross-sectional analyses pinpoint the channels where the positive association between tax haven intensity and share buyback is more pronounced. I also run difference-in-difference studies to observe MNCs' reactions to external shocks caused by U.S. legislation, showing a significant impact of the 2017 tax reform in enhancing the use of share buybacks. Our final study reports that MNCs with high levels of tax haven intensity are more likely to use buybacks to return profits to their shareholders, especially if other companies' characteristics are present, such as high management compensation and a low degree of board independence. Checking the flows of U.S. stock sales by entities in foreign countries, I find a more intense sale of stocks from entities in tax havens during the months the average buyback ratio of U.S. companies increased, highlighting a probable correlation between the two phenomena. Overall, the findings of this study provide valuable insights into how MNCs take advantage of the current international tax system and the legislation on buybacks to decrease their costs and provide higher returns to their shareholders. Our findings have important implications for policymakers and boards of directors of MNCs in terms of their decision-making on their capital structure and tax management strategies associated with using tax haven subsidiaries and how the government's actions can affect these strategies. Future research on this topic could use data on the ownership of investors' bank accounts in tax havens to study further their propensity to press MNCs

to execute share buybacks, if such data will ever be released. Furthermore, new tax reforms on the topic are likely to materialise in the near future, opening avenues for new research.

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Appendix A. Variable definitions and measurement

VARIABLE	DEFINITION
<i>THAV</i>	The total number of subsidiaries of an MNC incorporated in an OECD (2006) listed tax haven scaled by the total number of subsidiaries in year t-.
<i>ETR BY COMPANY</i>	Effective tax rate calculated as the ratio between corporate income tax and profits
<i>SIZE</i>	The natural logarithm of total assets in year t-1
<i>TANG_ASSETS</i>	Net property, plant and equipment scaled by total assets in year t-1
<i>CASH_HOLD</i>	Cash and marketable securities scaled by total assets in year t-1
<i>ROA</i>	Operating income scaled by total assets in year t-1
<i>MKTBK</i>	The market value of equity scaled by the book value of equity in year t-1
<i>SALES/REVENUES_GROWTH T-3</i>	Average ratio between sales and revenues in the last 3 years.
<i>REPATRIATION COST</i>	The difference between the U.S. statutory tax rate and foreign tax rate (0.35 - TXFO/PIFO) in year t-1. If the foreign tax rate is greater than 0.35, REPAT is set to zero. MNCs with negative foreign tax expense (TXFO) are set to 0.35 and corporations with foreign losses (PIFO) are set to missing (Laplane and Nesbitt, 2017).
<i>DIVIDEND PER SHARE</i>	The sum of the total amount of dividends that the company has given out over a year divided by the weighted average of shares that the company holds.
<i>EPS</i>	company's net profit divided by the number of common shares it has outstanding.
<i>P/E</i>	Ratio of company's share price to its earnings per share.
<i>DEBT_TOEQUITY</i>	how much of a company is owned by creditors (people it has borrowed money from) compared with how much shareholder equity is held by the company.
<i>YEAR_FE</i>	A dummy variable, coded 1 if the year falls within the specific year category, and 0 otherwise
<i>FIRM_FE</i>	Unobservable corporation-specific effects
<i>IND_DIR</i>	Non-employee board of director members scaled by total members of the board of directors in year t-1. Data are collected from the Institutional Shareholders Services (ISS) database
<i>BRD_SIZE</i>	The natural logarithm of the number of directors on the board in year t-1. Data are collected from the ISS database
<i>INST_OWN</i>	The total number of stock held by institutional investors scaled by the total number of stock outstanding in year t-1. Data are based on the most recent quarterly filing of stock holdings as reported by Thomson Reuters Institutional (13F) Holdings and CRSP databases

DELTA

The natural logarithm of the percentage change in a CEO's wealth for a 1% increase in stock price in year t-1. Data are collected from the Execucomp database. Computed as per Coles et al. (2006)

BONUS

The CEO's bonus which is cash or stock-option based (\$000 s) in year t-1. Data are collected from the Execucomp database. Computed as per Daniel et al. (2013)

WEALTH

The market value of the CEO's stock and option portfolio (\$000 s) in year t-1. Data are collected from the Execucomp database

CASHFLOW

Free cash flow of one firm in a given year for each share of the firm present on the stock market.

INVESTRETURN

$(\text{ROIC} - \text{WACC}) * \text{IC}$

difference between the return on invested capital (ROIC) and the weighted average cost of capital (WACC), multiplied by the invested capital

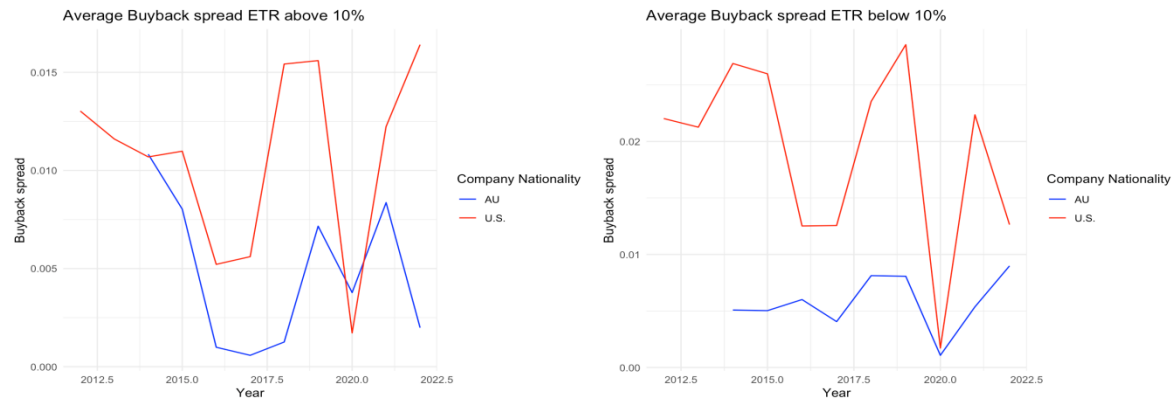
MA_SCORE_2022

Score created to represent the managerial ability at firm level. To explore the methodology please see Demerjian et al. (2012).

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Figure 1

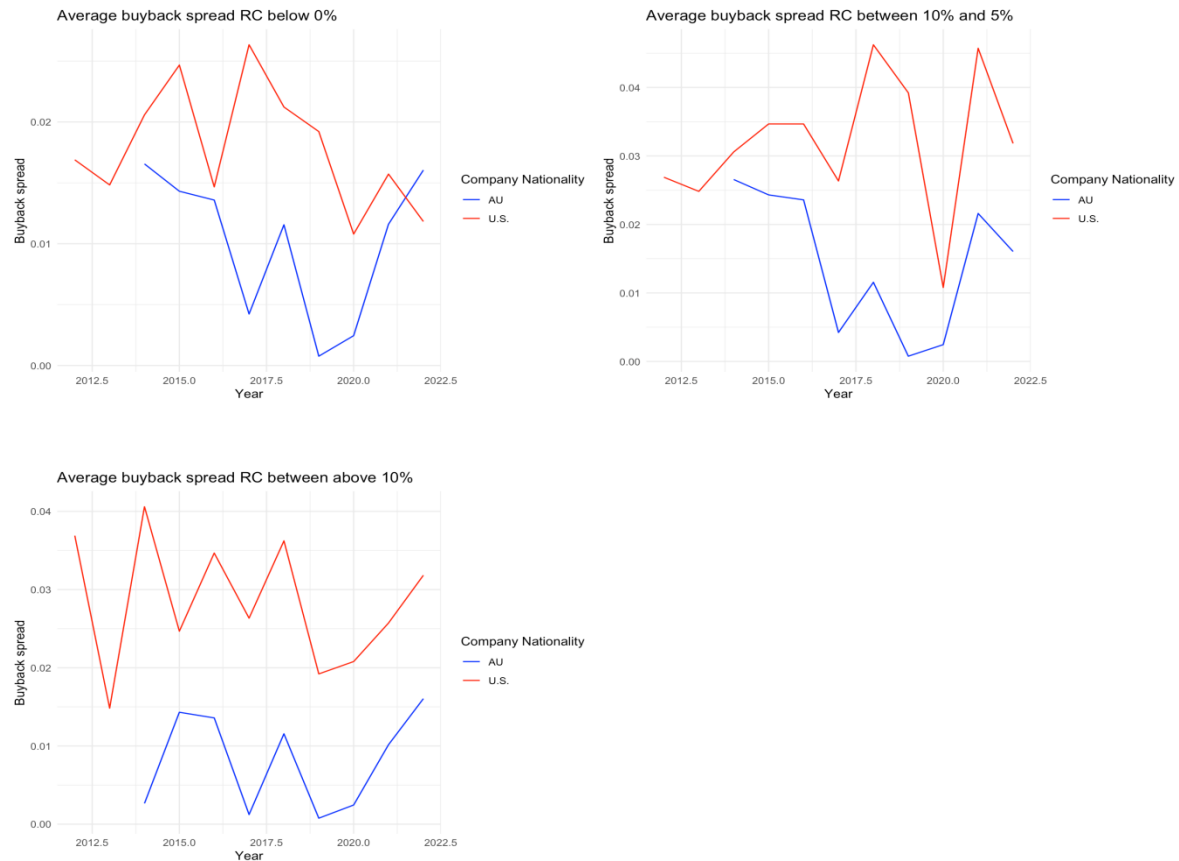
DiD analysis made using Effective Tax Rate (ETR) as a variable to classify groups.



Source: authors' calculations based on MarketBeat and Compustat data

Figure 2

DiD analysis made using Repatriation Cost (RC) as a variable to classify groups.



Source: authors' calculations based on MarketBeat and Compustat data

Figure 3

DiD analysis made using Total Investment return (TIR) as a variable to classify groups.



Source: authors' calculations based on MarketBeat and Compustat data

List of Tables

Table 1

sample industry distribution based on the FTSE Russel Industry Classification Benchmark

ICB CLASSIFICATION	FREQ.	PERCENT (%)	CUM. (%)
BASIC MATERIALS	184	4.25	4.25
CONSUMER	834	19.26	23.51
DISCRETIONARY			
CONSUMER STAPLES	236	5.46	28.91
ENERGY	164	3.79	32.70
FINANCIALS	910	21.01	53.72
HEALTH CARE	320	7.39	61.11
INDUSTRIALS	828	19.12	80.23
NA	4	0.09	80.32
REAL ESTATE	95	2.19	82.52
TECHNOLOGY	565	13.05	95.61
TELECOMMUNICATIONS	135	3.12	98.73
UTILITIES	55	1.27	100.00
TOTAL	4,330	100.00	

Table 2

Descriptive statistics – variables used in the tax haven intensity and buyback ratio analysis.

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
BUYBACKAMOUNT	4,329	1173494	435.7626	100	1.028608
BUYBACK_SPREAD (BASIS POINTS)	4,320	39.398	13.34531	6.78314	196.7743
BUYBACK_RATIO	4,320	.0823664	.1350438	.0000108	1.996307
ETRBYCOMPANY	4,176	.0803617	.0670315	0	.6893956
SIZE	4,328	15.27873	2.049663	2.302585	21.87395
TANG_ASSETS	4,328	.2000879	.229169	0	.9660358
CASH_HOLD	4,328	.157138	.1739373	0	.9479922
ROA	4,328	.0883655	.4091535	-26.1	.6339006
MKTBK	4,320	2.230168	66.0881	-1402.27	588.01
SALES_GROWTH	4,330	.0665623	.1572076	-1	3.1236
EPS	4,317	3.829031	12.64895	0	217.5
DIVIDENDPERSHARE	4,330	.9219723	1.802624	0	47.39
PE	4,330	35.46568	129.7957	0	3151
DEBT_TOEQUITY	4,330	.6289789	2.541152	0	54.15862
CASHFLOW	4,330	425.6123	1.95786	11.532	1233.565
INVESTRETURN	4,330	.0928589	1.43567	0	26.2436
MA_SCORE_2022	4,097	0.000743	0.150242	-0.27065	0.66168

Table 3

Average buyback ratio for American industries and the main industries + Australian companies (2012 data is missing)

AVERAGE BUYBACK RATIO	AMERICAN COMPANIES	FINANCIALS (U.S.)	RETAIL PRODUCTS (U.S.)	INDUSTRIALS (U.S.)	TECH (U.S.)	AUSTRALIAN COMPANIES
2012	6.96%	5.15%	5.09%	6.70%	8.25%	
2013	6.02%	6.55%	5.70%	7.93%	5.34%	4.22%
2014	6.87%	6.43%	5.50%	10.26%	5.22%	3.12%
2015	5.01%	6.62%	6.67%	6.70%	7.46%	3.83%
2016	4.20%	4.90%	6.17%	4.17%	6.06%	2.78%
2017	4.89%	4.56%	6.58%	3.98%	4.89%	3.89%
2018	7.65%	10.04%	7.22%	8.38%	8.17%	2.25%
2019	6.41%	8.34%	7.37%	5.58%	5.15%	2.22%
2020	2.58%	4.92%	6.89%	5.07%	7.41%	1.04%
2021	5.88%	5.97%	8.68%	8.94%	6.90%	3.46%
2022	7.09%	10.92%	6.99%	6.89%	6.88%	3.20%
N	4330	910	1060	828	565	550

[illegible]

AVRG BUYBACK_RATIO	-0.0860	-0.0256	0.0386	0.0137	-0.0446	0.0033	0.0014	0.0231	0.0307	0.0205	-0.0161	1.0000
CASHFLOW	0.543	-0.003	0.542	-0.091	0.054	0.112	0.031	-0.036	-0.041	0.122	-0.0984	0.422
INVESTRETURNS	0.356	-0.093	0.452	0.015	0.099	-0.219	-0.099	-0.048	-0.011	0.212	-0.037	0.531
MA_SCORE_2022	0.165	0.287	-0.125	0.016	0.081	0.204	0.232	0.198	0.126	0.177	0.288	0.345
BUYBACK_SPREAD												0.366
SIZE												0.143
ETRYCOMPANY												1.000
TANGASSETS												
CASHHOLDINGS												
ROA												
MKTBK												
SALESREVENUES_GROWTH												
EPS												
PE												
AVRG BUYBACK_RATIO												
CASHFLOW												
MA_SCORE_22												
MA_SCORE_2022												

Table 5
FFE panel regression results with THAV_(ETR)

BUYBACK_SPREAD	COEFFICIENT	ROBUST STD. ERR.	T	P-VALUE
INTERCEPT	-1.623527	.035118	-3.731	.0039
THAV_(ETR)	.535251	.118421	0.447	.0014
MA_SCORE_2022	.084516	.066546	0.127	.901462
THAV*MA_SCORE_2022	.071336	.0456785	0.276	.01482
SIZE	-.0042567	.0014567	-3.43	.000
TANG_ASSETS	-.071862	.115769	-0.621	.548657
CASH_HOLD	.044111	.0216022	2.056	.066850
ROA	-.348522	.0268345	-1.299	.223167
MKTBK	.055829	.012690	4.399	.0013
SALESREVENUES_GROWTH	-.079695	.281116	-2.835	.0177
EPS	-.008530	.014730	-0.579	.575353
PE	.006643	.001266	5.247	.0003
DEBT_TOEQUITY	.115324	.054080	2.132	.05870
CASHFLOW	.422559	.029749	4.782	.007
INVESTRETURN	.152677	.0011577	1.11	.011
_CONS	.1356778	.0146476	5.23	0.000
N	4330			
SIGMA_U	.0964567			
SIGMA_E	.1142678			
RHO	.37178755			

Table 6
FFE panel regression results with THAV_(SUB)

BUYBACK_SPREAD	COEFFICIENT	ROBUST STD. ERR.	T	P-VALUE
THAV_(SUB)	.1202537	.0626504	-2.76	0.043

MA_SCORE_2022	.0492535	.0345566	0.346	0.056
THAV* MA_SCORE_2022	.053677	.0267536	0.415	0.032
SIZE	.0149784	.0143316	-3.25	0.000
TANG_ASSETS	.0560952	.0223526	1.77	0.325
CASH_HOLD	.1264398	.0335246	1.21	0.133
ROA	.0365918	.0642675	1.73	0.465
MKTBK	-.0353546	.0031535	-0.77	0.735
SALESREVENUES_GROWTHT3	-.1098529	.0459874	-2.42	0.006
EPS	-.0354636	.0021366	-0.88	0.426
PE	-.0312353	.0026736	0.12	0.246
DEBT_TOEQUITY	.02473446	.0052375	3.11	0.000
CASHFLOW	.14962566	.0013466	2.10	0.034
INVESTRETURN	.09567354	.0032141	1.51	0.124
_CONS	.17562762	.0416673	2.49	0.000
N	4330			
SIGMA_U	.12014569			
SIGMA_E	.13536752			
RHO	.2356367			

Table 7

FFE panel regression companies with and without subsidiaries in tax havens (robust standard deviation in parenthesis)

BUYBACK_SPREAD	COEFFICIENT (WITH TAX HAVENS)	P-VALUE	COEFFICIENT (WITHOUT TAX HAVENS)	P-VALUE
THAV_(TAXHAVENS)	.2148735 (0.0243)	.038	.0347812 (0.0233)	0.083
MA_SCORE_2022	.0353876 (0.0539)	.022	0.062474 (0.0235)	0.032
THAV* MA_SCORE_2022	.0263496 (0.0643)	0.05	0.011265 (0.0193)	0.065
SIZE	.1473898 (0.0298)	.019	.1234782 (0.0222)	0.012
TANG_ASSETS	.0285984 (0.0311)	.022	.0045135 (0.0356)	0.011
CASH_HOLD	.0948975 (0.0211)	.088	.0986367 (0.0232)	0.120
ROA	.1098724 (0.0322)	.044	.0643284 (0.0300)	0.079
MKTBK	.0134447 (0.0319)	.009	.0213787 (0.0398)	0.011
SALESREVENUES_GROWTHT3	-.0135246 (0.0419)	.077	.0245414 (0.0445)	0.088
EPS	0.286483 (0.0294)	.021	.1432797 (0.0329)	0.033
PE	.1354545 (0.0314)	.029	.0481569 (0.0330)	0.039
DEBT_TOEQUITY	.0313878 (0.0209)	.005	0.237839 (0.0289)	0.002
CASHFLOW	.1637666 (0.0753)	.011	.044445	0.018
INVESTRETURN	.1156274 (0.0156)	.012	.082487 (0.0234)	0.011
_CONS	.1154364 (0.0211)	.011	0.53516 (0.0245)	0.000
N. OF COMPANIES	1321		231	
SIGMA_U	.32785744			
SIGMA_E	.18748588			
RHO	.17893653			

Table 8

panel regression with sales of U.S. stocks from foreign countries by period

SALES OF U.S. STOCKS FROM FOREIGN COUNTRIES	COEFFICIENT	ROBUST STANDARD ERROR	P-VALUE
MONTHLY_BUYBACK_RATIO	.1458379	.022	.024
S&P500	.0524244	.014	.012
AVERAGE_EPS_S&P500	.1253566	.012	.004
AVERAGE_PE_S&P500	.0355668	.055	.098
TAX HAVENS (2012-2017)	.2535266	.022	.012
TAX HAVENS (2018-2019)	.3158284	.031	.023
TAX HAVENS (2020-2022)	.3092475	.042	0.24
EU+CANADA (2012-2017)	.0413297	.025	.012
EU+CANADA (2018-2019)	.1536367	.032	.022
EU+CANADA (2020-2022)	.1453668	.044	.065
HK+JAPAN (2012-2017)	.1223345	.012	.019
HK+JAPAN (2018-2019)	.1843266	.011	.032
HK+JAPAN (2020-2022)	.1351355	.045	.051
N.	133		
SIGMA_U	.12445755		
SIGMA_E	.27347535		
RHO	.09197315		

Table 9
DiD using corporate tax cut as treatment, period 2012-2017 and 2018-2022 (TJCA)

	COEFFICIENT/(P-VALUE) ABOVE 10% THRESHOLD	COEFFICIENT/(P-VALUE) BELOW 10% THRESHOLD
TREATMENT (without PSM)	.071029 (0.314)	.0146506(0.000)
TREG_POST (without PSM)	.074812 (0.085)	.053967 (0.076)
TREATMENT*TREG_POST (without PSM)	.1872485(0.037)	.2237647(0.019)
TREATMENT (with PSM)	.043789 (0.245)	.0358778(0.000)
TREG_POST (with PSM)	.046381 (0.277)	.035984(0.098)
TREATMENT*TREG_POST (with PSM)	.1839833(0.039)	.278319(0.019)
N	4876	4876

Table 10

Table 11

FFE panel regression results – cross-sectional analyses

	COEFFICIENT/(P- VALUE) ABOVE 10% THRESHOLD	COEFFICIENT/(P- VALUE) BETWEEN 10% AND 0% THRESHOLD	COEFFICIENT/(P- VALUE) BELOW 0% THRESHOLD	Panel A: Corporate governance channel.
TREATMENT (without PSM)	-.0143683 (0.001)	-.0086374 (0.001)	-.0074613 (0.001)	
TREG_POST (without PSM)	.0074812 (0.085)	.0064834 (0.086)	.0047838 (0.070)	
TREATMENT*TREG_POST (without PSM)	.0154255 (0.015)	.0947287 (0.38)	.1293991 (0.035)	
TREATMENT (with PSM)	.0253785 (0.111)	.0197528 (0.123)	.0249787 (0.236)	
TREG_POST (with PSM)	.0237024 (0.246)	.0097276 (0.057)	.0359989 (0.060)	
TREATMENT*TREG_POST (with PSM)	.0358839 (0.011)	.1333449 (0.033)	.1624877 (0.029)	
N	4830	4830	4830	

Tab**Table 12**

FFE panel regression results – cross-sectional analyses.

Panel B: CEO compensation and wealth and alignment of shareholders 'and managers' interests

VARIABLES	IND_DIR_H IGH coefficient/(z-value)	ND_DIR_ LOW coefficient/(z-value)	BRD_SIZE_ HIGH coefficient/(z-value)	BRD_SIZE_ LOW coefficient/(z-value)	INST_OWN_ HIGH coefficient/(z- value)	NST_OWN_ LOW coefficient/(z- value)
THAV_ETR	0.245*** (0.35)	0.246* (1.45)	0.244** (2.32)	0.067* (1.23)	0.478*** (0.45)	0.098* (0.99)
ALL CONTROL VARIABLES	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM_FE	Yes	Yes	Yes	Yes	Yes	Yes
N	2898	1353	2335	1732	2345	1123

DIVIDEND PER SHARE	COEFFICIENT 2021-2022	COEFFICIENT 2023	T 2021- 2022	T 2023	P>T 2021- 2022	P>T 2023
BUYBACK_RATIO	.002 (0.42)	.009 (0.34)	1.32	1.32	-1.02	1.23
SIZE	.012 (0.24)	.044 (0.13)	1.22	0.89	2.02	-0.46
TANG_ASSETS	.003 (0.22)	.012 (0.56)	0.54	1.21	1.21	1.54
CASH_HOLD	.032 (0.12)	.084 (0.02)	0.88	1.19	1.09	-0.76
ROA	.065 (0.13)	.022 (0.05)	0.67	1.03	0.35	-0.55
MKTBK	.011 (0.61)	.064 (0.07)	0.34	0.75	-0.11	1.22
SALESREVENUES_GROWTH3	.002 (0.27)	.011 (0.44)	0.12	-0.86	-2.02	0.98
EPS	.013 (0.11)	.002 (0.21)	0.97	1.10	-0.50	0.56
PE	.065 (0.53)	.022 (0.64)	0.23	1.02	0.23	0.87
DEBT_TOEQUITY	.023 (0.24)	.045 (0.11)	1.23	0.68	1.54	1.29
CASHFLOW	.112(0.02)	.013(0.23)	1.	1.62	0.43	-0.22
INVESTRETURN	.003(0.04)	.035(0.33)	01		1.21	1.03
			00	1.		
_CONS	.012(0.40)	.032(0.42)	2.33	1.10	1.43	0.11
N	250	88				

Table 13

FFE panel regression results, 2021-2022 vs 2023 (standard error in parenthesis)

VARIABLES	DELTA_ HIGH coefficient/ (z-value)	DELTA_ LOW coefficient/ (z-value)	BONUS_ HIGH coefficient/ (z-value)	BONUS_ LOW coefficient/ (z-value)	WEALTH_ HIGH coefficient/ (z-value)	WEALTH_ LOW coefficient/ (z-value)
THAV_ETR	0.423** (0.15)	0.543 (1.43)	0.643** (0.02)	0.287* (1.33)	0.235*** (0.35)	0.075** (0.79)
ALL CONTROL VARIABLES	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM_FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1597	1687	2382	2457	1192	3256

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