



Research article

Sovereign wealth fund investments and financial performance of target firms: The disciplinary role of debt in political agenda theory

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ABSTRACT

Using a sample of Indian firms acquired by the Norwegian Sovereign Wealth Funds, we investigate whether Sovereign Wealth Fund investments affect the capital structure of firms. We also examine whether leverage serves as a disciplinary mechanism in attenuating the political agenda effects of Sovereign Wealth Fund investments. Our findings reveal that Sovereign Wealth Fund ownership and size reduce leverage. We also find that sovereign wealth fund ownership of 2% and below increases financial performance, supporting the monitoring hypothesis. At above 2% sovereign wealth fund ownership stake, profitability drops significantly, supporting the political agenda hypothesis. We also find that leverage reduces the negative impacts of sovereign wealth fund ownership on the firm's financial performance when the firm's sovereign wealth fund ownership exceeds 2%, suggesting that at certain sovereign wealth fund ownership thresholds, the firm must decide on taking further debt to attenuate government opportunism behaviour and political agendas. Our findings are robust to an alternative measure of sovereign wealth funds, financial constraints, and endogeneity concerns.

1. Introduction

In the last two decades, institutional investors have been applied as a corporate monitoring mechanism in exercising the ownership rights and interests of shareholders [1]. Meanwhile, Sovereign Wealth Funds (SWFs) are one of the largest institutional investors owing to their major sources from foreign currency reserves and public pension assets [2]. According to the Global Sovereign Wealth Fund [3], the total assets under management of SWF are about USD 10.54 trillion. Following its asset base, SWF has been linked with corporate financing with the motives for SWF managers to serve the needs of the government that owns the funds in the acquisition of technology, military equipment, or natural resources, which have social and geopolitical consequences. Similarly, SWFs governance has been an issue of concern to practitioners and academic researchers. For example, there is a lack of transparency in the strategic motives for SWF investments. The opaqueness surrounding the foreign government ownership structure of SWF investments might have great impact on corporate decisions. As such, there would be a conflict between government opportunism behaviour and the mandate of government in promoting societal goals (i.e., environmental, social, and governance sustainability) in the corporate

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sectors.

In comparison to other global SWFs, the Norwegian SWF is an ethical fund, set up to serve as a financial reserve and long-term savings plan for the country's oil wealth, which is managed by the Norges Bank Investment Management (NBIM). As of June 2022, The Norwegian SWF has a market value of 1180 billion Norwegian Kroner (about \$1.1 trillion US dollars) [3]. The objective of the Norwegian SWF is dependent on sustainable development in economic, environmental and social activities [4]. The Norway fund complies with some Ethical Guidelines including not investing in firms that produce weapons, tobacco companies, harm the environment, or are deemed to commit serious human rights abuses [4]. In 2014, The Norwegian SWF withdrew from 32 coal-mining companies due to environmental damages [5]. The Norwegian fund is characterized by a high degree of transparency and disclosure of socially responsible investments, and thus, requires more practical and academic investigations.

Prior studies on SWF investments and financing decisions can be categorized into two streams. Scholars in the first stream have investigated the impact of SWFs on the cost of corporate borrowings [6–11], equity pricing, firm ESG reputation risk, return-to-risk performance, national culture, and firm value [1,2,6,7,11,12]. Godsell [11] submits that financial reporting quality becomes weak after SWF investments. Also, a target firm faces an increasing reputation risk following SWF investment [1]. These negative effects may impact the firm's capital structure decisions. Huang et al. [13] posit that in settings with weaker governance quality, firms are faced with higher information asymmetry which may result in higher financing costs. All these studies suggest that target firms acquired by SWFs often experience increased cost of capital and poor earnings quality after SWF investments due to the simultaneous pursuit of political, state-induced investment, and financial investment objectives by governments. Despite, the number of studies on SWF-cost of capital nexus, they do not distinguish between ethical SWFs and non-ethical SWFs, and importantly, how they can explain corporate leverage within the theoretical assumptions of the monitoring hypothesis, and whether leverage could reduce the negative effects of the political agendas of governments.

The second stream of studies on SWF has investigated leverage as a control variable in determining SWF investments [14–18]. These studies contend that SWFs are more likely to invest in target firms that exhibit high growth and leverage. However, these studies do not explain whether SWFs could determine the leverage of firms as a dependent variable. Since the theoretical assumption of the tax-relevance theory of Modigliani and Miller [19] that capital structure matters for corporate firm valuation, and the establishment of the core determinants of capital structure by Titman and Wessels [20], Graham and Harvey [21], and Frank and Goyal [22], many advances have been made to increase our understanding of capital structure. However, more answers are yet to be provided on whether sovereign wealth funds are associated with capital structure. Prior studies have majorly established that SWFs matter for the cost of capital [9–11], suggesting that SWFs could impact access to finance and may distort the financing structure of firms.

Meanwhile, despite the benefits of SWFs in capital allocation, SWFs theorists (e.g., Rose [23]) contend that SWFs increase monitoring costs by other investors and due to the passivity of SWFs, it reduces shareholder monitoring of management and thus further raises agency costs. Following the agency cost effect of SWFs, and the resultant effects of lower share prices and profitability, this study uses leverage as a positive moderating mechanism that can reduce the negative impact of SWFs. Leverage can act as a monitoring agent by reducing agency costs of sovereign ownership, which are costs that arise when managers are influenced to pursue their interests instead of the interests of shareholders. When a firm takes on debt, lenders have a greater say in the firm's decision-making and can monitor the firm's operations more closely to ensure that the firm is using the debt capital efficiently. This can help to reduce agency costs including the political agenda of SWFs, thus, improving the performance of the firm. Several studies have shown that firms with higher levels of debt tend to have lower agency costs and better corporate [24,25]. These studies suggest that leverage can act as a monitoring agent by reducing the agency costs that arise from the separation of ownership and control in publicly traded firms.

Consequently, the objectives of this study are to investigate the link between SWFs and leverage decisions, and subsequently, the financial performance of target firms through SWF investments. It also investigates leverage as a moderating variable in the relationship between SWFs and profitability. This study focuses on Norway's SWFs as ethical SWFs that could influence the leverage decision and performance of firms. Using firm-level data from 104 Indian firms, selected based on Norway SWF investment in their ownership structure and controlling for relevant variables, our study's findings resolve the debate between the contracting and predatory theoretical standpoints of the role of SWFs on corporate outcomes.

While the contracting theoretical view (i.e., monitoring hypothesis) follows a positive impact of SWF on the corporate outcome [10, 26,27], the predatory theoretical view (i.e., political agenda theory) describes a negative impact of SWF on corporate outcomes [28, 29]. Our findings clear these theoretical debates that the contracting view is established when SWF ownership is approximately 2% or less. However, when the SWF ownership is approaching 4%, the impact is destructive as it reduces corporate financial performance (e.g., return on assets) and reduces leverage in firms suggesting that SWF firms may benefit less from tax-deductible advantages and may be faced with high free cash flows in the hands of corporate managers. Thus, governments exercise their predatory or opportunistic behaviour by expropriating corporates when their SWFs increase above 2%. Furthermore, to confirm the reliability of our estimates and findings, we conduct a battery of robustness tests. We examine another mechanism through which SWFs impact financial performance by examining their impact on financial constraints and addressing endogeneity issues, using the lead-lag approach and two-stage least squares (2SLS) regression.

Our study has several contributions to the ownership structure and capital structure literature. First, while past studies investigate the effects of insider ownership (i.e., promoters) and family ownership on corporate financing decisions, to the best of our knowledge, this study is among the first to examine the relationship between ethical SWF ownership and capital structure. Our findings support the monitoring hypothesis that SWF reduces leverage while adding to the strand of research that examines the determinants of corporate financing decisions [7,30]. Second, our study establishes a threshold of the costs and benefits of SWF. We establish that at SWF ownership of 2% and below, target firms benefit from the monitoring mechanism of SWF. However, at above 2%, target firms

experience low performance, supporting the political agenda theory. Thus, sovereign governments exercise their expropriation and political objectives when SWF ownership is above 2%. Third, past studies established that transparency and governance Investor protection index and shareholder suits index could lessen the positive effects of SWF ownership on risk-taking, reputation risk, and cost of financing [1,31]. Our findings further established that leverage could moderate the relationship between SWF and financial performance. We established that the interaction of SWF and leverage increases the return on assets as opposed to when SWF only reduces it. This suggests that the issuance of debt could reduce agency problems and firms should ensure a balance between creditors and shareholders to reduce conflict between these stakeholders, which supports the assertion that debt is a disciplinary mechanism [32–34].

The remaining part of this paper is organized as follows. Section 2 discusses the theoretical background and hypotheses development. Section 3 describes the research design and data. Section 4 presents the results on the relationships between SWF, capital structure and leverage and the robustness checks. Section 5 discusses and concludes the study.

2. Theoretical underpinning and hypotheses development

2.1. Monitoring hypothesis

According to the monitoring hypothesis, agency theorists opined that managers adopt behaviour that is non-value maximising because they are not real owners of the firms which eventually increases agency costs [35]. Sovereign wealth funds have the power to put end to many agency problems by monitoring portfolio managers and disciplining underperforming managers which in turn increases value for the target firms [36]. Consequently, the firm will face increased performance and low risk which ultimately decreases the leverage of firms.

Moreover, SWFs can also use their influence to impact the leverage of target firms by promoting good corporate governance practices thereby reducing information asymmetry between firms and investors, which makes it easier for firms to access the capital markets [9,37]. SWFs can help target firms maintain a healthy balance sheet and avoid excessive leverage. Conversely, if an SWF puts pressure on a target firm to pay higher dividends or engage in share buybacks, it may increase the leverage of the target firm [15]. However, SWFs can also create a moral hazard problem, where firms are incentivized to take on more risk because they believe the government will bail them out if they fail. For example, if the government invests in a firm and gains control over its board of directors, it may be able to influence the firm's financial policies, including its leverage.

Studies supporting the monitoring hypothesis (e.g., Fernandes [38] report that the firms attracted by sovereign wealth funds' investments benefited from strong monitoring, better access to capital, a high level of CEO turnover and improved access to the foreign market, which in turn increases target firms' value and operational performance. The risk of default is reduced by implicit guarantee by government ownership which ultimately reduces the cost of debt [39]. Therefore, the monitoring hypothesis predicts a negative relationship between SWF investments and leverage.

2.1.1. Political agenda theory

In contrast to the monitoring hypothesis, and according to the political agenda hypothesis, the government is considered an "inefficient owner" i.e., their goals can be inconsistent with basic objectives of profit and wealth maximisation. They may impose extra-commercial objectives like political agenda, socially desirable objectives and trying to extract rents from the target firm to pursue their private benefits [40]. This political agenda along with expropriation risk could potentially increase the agency problems and reduce monitoring for the target firms. In addition, contrary to other institutional investors, SWFs have less transparency and accountability and release little financial, operational and governance information about their investments. Similarly, SWF investors could have conflicts with managers and other stakeholders, which eventually reduces the target firm performance and value. Sovereign wealth funds have increased risk of shareholders with superior informational status and with hidden non-financial objectives [9]. This superior information status allows them to make decisions in the target company and which results in expropriating other stakeholders [41]. Supporting the political hypothesis, government ownership is associated with a higher cost of debt in non-crises period [39]. Further, market reactions are affected by the behaviour and characteristics of funds. Larger discounts are provided when SWFs are present on the board of directors. Also, SWFs from a strict government environment are followed by large stakes [6]. Therefore, SWF investments might influence the target leverage through political agenda, tunnelling, and expropriation risk. Thus, it deteriorates operational, financial performance, and firm value by inducing agency conflicts which eventually increase agency costs. Therefore, the political agenda theory predicts a negative relationship between SWF investments and financial performance.

2.2. Hypothesis development

2.2.1. SWF ownership, leverage, and performance

The monitoring hypothesis posits that managers adopt behaviour that is non-value maximising because they are not real owners of the firms which eventually increases agency costs [35]. Shleifer and Vishny [36] argue that large and institutional shareholders can reduce this agency costs by disciplining managers. Sovereign wealth funds are characterized as long-horizon investors with low liabilities, lower liquidity needs, strong government, and assets under management backup. Contrary to the private investor, as an active institutional investor, sovereign wealth funds can play an active monitoring role. Since it has the power to put end to many agency problems by monitoring portfolio managers and disciplining underperforming managers which in turn increases the value of target firms.

Furthermore, according to the monitoring hypothesis of government ownership, the government can act as a financial backer for target firms by guaranteeing firm liabilities, discounted access to credit, subsidies, tax relief and implicit government bailout. Consequently, the firm will face increased performance and low risk which ultimately decrease the leverage of firms, supporting the pecking order theory of capital structure. Studies supporting the monitoring hypothesis (e.g., Fernandes [38]) report that the firms attracted by sovereign wealth funds' investments benefited from strong monitoring, better access to capital, a high level of CEO turnover and improved access to the foreign market. Domestic investments by sovereign wealth funds result in a decrease in the cost of equity because of the implicit bailout guarantee [7,8].

Boubakri and Saffar [42] investigated and found that state ownership significantly reduces the use of bank debt financing because of incentives provided by government ownership. In addition, an implicit bailout guarantee can help to reduce default risk in times of distress [39]. The same arguments can be applied to the leverage of target firms. Consistent with the political hypothesis, SWF ownership is followed by lower bond maturity which signals support for the political agenda to other stakeholders [10]. This drop in bond maturity is mainly because of information disadvantage and SWF inactive governance and laws [12]. Therefore, we formulate our hypothesis that investments by sovereign wealth funds in target firms lead to a decrease in leverage.

H1a. There is a negative relationship between sovereign wealth fund ownership and target leverage.

Based on the monitoring hypothesis, state ownership may reduce the firm's financial performance because of social and political objectives which creates conflict with other stakeholders [43]. Studies have empirically examined the relationship between government ownership and financial performance [44,45]. Acero et al. [46] established a non-linear relationship (inverted U-shaped curve) between ownership and performance and noted that the relationship is mainly due to monitoring and expropriation effects. The increase in ownership increases the performance of target firms up to a limit known as the monitoring hypothesis. However, a high concentration level of ownership is followed by the possible expropriation risks of minority shareholders, supporting the proportion of the political agenda theory. In line with the study of Acero et al. [46], Hoang et al. [47] found an inverted U relationship between state ownership and performance indicating that state ownership with a low percentage level allows firms to have a closer bond with governments and politicians and provides with benefits like subsidised interest rates, and government-sponsored bailouts. Chen et al. [45] found an inverted U-shaped relationship between state ownership and performance demonstrating a negative relationship up to a certain point and then performance increases with an increase in stake. The negative performance is due to agency costs and grabbing hands exercised by government shareholders. The harmful effect of SWFs is more pronounced at high-level ownership stakes, which means there is the threat of expropriation risk while minority state ownership seems to benefit from preferential access to resources and expertise [48].

Meanwhile, Dewenter et al. [41] and Sojli and Tham [49] found a positive relationship between SWF investment and target firm performance, contending that sovereign wealth fund investments act as potential monitoring agency, encompass internationalisation benefits, creates better access to resources, capital markets, and technologies, and increases target firms Tobin's Q. The increase in Tobin q increases with government-related contracts granted by SWF countries [49]. Contrary to the positive views of SWF investments [41,49], state ownership owners pursue multiple objectives including social objectives and political objectives that may conflict with other stakeholders in the firm. Additionally, state owners are called inefficient owners and are risk-averse shareholders. Recently, Iwasaki et al. [50] confirmed a negative relationship between state ownership and performance, establishing that the presence of non-maximising and political objectives in firms could deter overall stakeholders' objectives. Assessing both minority and majority ownership, Liljebloom et al. [51] stated found negative relationships between minority ownership, majority ownership and performance, stressing further that minority stakes are the main pronounced sources of these negative effects. State ownership reduces financial performance as state owners are inefficient owners which increases the agency costs of target firms [52,53]. Therefore, we hypothesized as follows.

H1b. There is a negative relationship between SWF ownership and financial performance.

2.3. SWF size, leverage, and performance

The size and rapid expansion of sovereign wealth funds made this class of institutional investors very significant in corporate financing. These investments provide a platform for governments to invest in different sectors in foreign countries by buying large stakes in target firms. Shleifer and Vishny [36] contended that large shareholders have enticements to monitor the firm activities and can act as monitoring agents in the firm because of the size of the stake they owned. The larger the percentage of ownership, the larger the shareholders expected profits, which means that the size of a large shareholder share affects the activities of the target company. Also, sizeable stakes in a corporation can play an important role in monitoring managers [38]. In addition, sovereign wealth funds can benefit the target firm by injecting capital in times of uncertainty and could support retaining economic viability [18]. Thus, the ability of sovereign wealth funds to take large stakes in target firms, their large size, liquidity and as long-term investors would make SWFs the ideal investor to monitor the firm activities [17].

On the other hand, Shleifer and Vishny [25] argue that a dominant large shareholder might peruse to extract private benefits of control and thus expropriate wealth from minority holders. This could be done by transferring the firm assets and taking strategic decisions using their positions as large shareholders [54]. SWFs often show low transparency by hiding financial information about the nature, size and strategy of their investments which is the main reason for fear experienced by the target country [55]. Accordingly, sovereign wealth funds may expropriate minority shareholders and seek their interests by taking majority stakes thus can impact the corporate decisions of target firms. Further, the government ownership view, elaborates that sovereign wealth funds can exercise

political influence by injecting a large number of investments into the markets of target countries [18]. Also, the size of SWF investments can influence corporate decisions through technological transfers which smells the presence of political agenda [56].

Dewenter et al. [41] argue that there is a trade-off between monitoring and tunnelling activities i.e., large share acquisition on firm value is a non-linear function of transaction size. With an increase in transaction size, monitoring activities increase and therefore increase firm value but decline thereafter when expected tunnelling activities grow which reduces the size by divestments. Also, Borisova et al. [39] found that government stake size is associated with a higher cost of debt due to market distortions fostered by state influence by exploring macroeconomic strategies especially in non-crisis periods or in times of no distress. Further, Kotter & Lel [18] found a positive relationship between SWF size and target firm returns, suggesting that SWFs actively monitor the activities of target firms as the SWF investments increase. In contrast, Bortolotti et al. [6] found a negative relationship between the size of SWF investment and the returns of the target firm, indicating that SWFs are constrained passive investors as their main motive is to interfere in target firm management by demanding high performance or by holding managers to account. Holland [57] noted that government-owned funds are more likely to impose political agenda when the size of their controlling stake in firms increases, as such, the more negative reactions to the SWF investments are more predominant at larger stakes. While a few studies have focused on the link between SWF size and cost of capital (e.g., Bortolotti et al. [6]; Borisova et al. [39]) the relationship between the size of SWF investments and leverage, and subsequently on financial performance requires an empirical investigation. Therefore, we hypothesized that.

H2a. There is a positive relationship between SWF size and target leverage.

H2b. There is a positive relationship between SWF size and financial performance.

Debt could be considered as a governance mechanism which plays a disciplining role to reduce the agency conflict between equity holders and managers and the resulting agency costs. Owners (principals) assign managers (agents) to accomplish on their behalf certain tasks. However, the government could foster their interests and engage in political agendas and expropriation goals to maximise their wealth. One way to limit the opportunistic behaviour of government ownership power in firms is to implement disciplinary mechanisms to control managers' actions and align interests between parties [24]. Resting on the assumption of the monitoring hypothesis, firms that have more government ownership in their ownership structure are more likely to demand debt as an external control mechanism to limit opportunistic behaviour and expropriation decisions.

SWF faces moral hazard conflicts between managers and investors [48], and debt has a disciplining function to mitigate the agency cost of political agendas [33,34]. Contrary to the assertion that commodity-based SWFs such as the Norwegian Government Pension Fund, have stabilization goals and that the use of leverage might be incompatible with the low-risk objective of these funds (Bertoni & Lugo [58]). Chen et al. [59] contend that when SWFs result in lower firm value and reduced investment efficiency, such funds are passive investors due to their small equity investments that are detrimental to target firms' corporate governance. Consequently, such target firms would require debt capital to account for the passive investments of small SWFs that are characterized by recapitalization decisions. Dathan and Davydenko [32] found that increases higher passive investments increase firms' propensity to issue bonds. In light of the above, we formulate as follows.

H3. Leverage moderates the relationship between SWF ownership, SWF size and financial performance.

3. Data, sample, and methodology

3.1. Sample selection

We collected data from multiple sources. The data is collected from the S&P Capital IQ, CMIE ProwessIQ database, NBIM (Norges Bank Investment Management) and World Development Indicators for Indian firms. Definitions of the dependent and independent variables are presented in Table 1. We measure our dependent variable; capital structure using book leverage [20] while we measure financial performance using return on assets [60]. Moreover, to measure Norway SWF investments, we consider the percentage of an ownership stake and the size of the funds in the firm's ownership structure. Data on SWF ownership and SWF size are collected from NBIM (Norges Bank Investment Management). The sample firms are selected based on Norway SWF investments in their ownership structure and financial firms were excluded due to special regulatory principles. Finally, we obtain a sample of 104 firms targeted by Norway's sovereign wealth fund over 2016–2021. The procedure for the determination of our sample size is presented in Table 1.

Table 1
Sample description.

Sample details	No.
The initial sample (All listed firms in India) downloaded from S&P Capital IQ	5351
Exclusion of firms established from the year 2016	4581
Exclusion of financial, utilities and real estate firms	3592
Target firms with Norwegian SWF (sourced from the NBIM database)	104

Note: NBIM is Norges Bank Investment Management. We obtained a small sample size, compared with the 3592 firms because, in 2014, the Norwegian SWF withdrew from coal-mining companies due to environmental damages.

3.2. Empirical specifications and analysis technique

Motivated by prior studies ([7,61,62]), we examine the relationship between SWF investments, capital structure and firm performance, we run Eqn. (1) and Eqn. (2), and also control for the main determinants of the dependent variables (leverage and financial profitability).

The model specification is as follows:

$$LEV_{i,t} = \beta_0 + \beta_1 SWFInvest_{i,t} + \beta_2 PROF_{i,t} + \beta_3 MTBV_{i,t} + \beta_4 NDTs_{i,t} + \beta_5 TANG_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 GDPG_{i,t} + \beta_8 INF_{i,t} + \beta_9 Year_D_{i,t} + \beta_{10} Industry_D_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$ROA_{i,t} = \beta_0 + \beta_1 SWFInvest_{i,t} + \beta_2 LEV_{i,t} + \beta_3 SWFInvest * LEV_{i,t} + \beta_4 MTBV_{i,t} + \beta_5 TANG_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 GDPG_{i,t} + \beta_8 INF_{i,t} + \beta_9 Year_D_{i,t} + \beta_{10} Industry_D_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where LEV is leverage, ROA is the return on assets, SWFInvest is sovereign wealth fund ownership investments (measured as SWF ownership and SWF size), PROF is profitability, MTBV is market-to-book value, NDTs is non-debt tax shield, TANG is tangibility, SIZE is the size of the company, GDPG is gross domestic product growth, INF is inflation, Year_D and Industry_D are the years and industry dummies, respectively.

To test the model specifications, we run a multivariate regression model that controls for industry and year-fixed effects in addition to clustering of standard errors at the firm level. Meanwhile, we adopt the orthogonalizing approach to compute the moderating effect (i.e., $SWFInvest * LEV_{i,t}$) as suggested by Hair et al. [63] and Memon et al. [64]. Unlike the product-indicator and two-stage methods that produce collinearity in the structural model (Fassott et al. [65]), the orthogonalizing approach is typically used to eliminate multicollinearity issues through residual centering or demeaning [63,64].

3.3. Variables

3.3.1. SWF investments variables

We use two proxies for the SWF investments. The first proxy is SWF Ownership. We follow prior studies (e.g., Ghouma & Ouni [10]) and proxy SWF ownership as the percentage of shares held by the Norwegian SWF in the capital of the target firm after the acquisition. In contrast to Ghouma and Ouni [10], we focus on Ethical SWF in different target firms characterized by firms that do not involve in sinful products and services such as the production of Tobacco. This proxy allows us to understand to what extent SWF's stake in target firms would increase societal and environmental goals towards increased financial performance or whether the political agenda of SWF would influence financial performance negatively. Our second proxy for SWF investments is SWF size. This proxy allows us to establish whether the SWF stake in target firms is large or small since SWF size is very significant in corporate financing decisions and performance. According to Shleifer and Vishny [36], large SWF investments have a better monitoring role in target firms due to the size of the stake they owned.

3.3.2. Leverage measure

We follow past studies (e.g., Adeneye et al. [66]; Gangi et al. [16]; Gnabo et al. [17]) on the measure of leverage. We measure

Table 2
Definitions of variables and sources.

Variables	Description	Data sources
SWF ownership	The post-transaction total percentage of shares acquired by the Norway sovereign wealth fund.	Norges Bank Investment Management (NBIM) ^a https://www.nbim.no/
SWF size	The natural logarithm of the dollar value of equity under the control of the SWF.	Norges Bank Investment Management (NBIM) ² . https://www.nbim.no/
LEV	The firm leverage is the ratio of total debts to total assets for the year	Prowess IQ. https://prowessiq.cmie.com/
PROF (ROA)	Earnings before interest and taxes are divided by total assets.	Prowess IQ. https://prowessiq.cmie.com/
MTBV	Market-to-book ratio, which equals the market value of equity divided by the book value of equity	Prowess IQ. https://prowessiq.cmie.com/
NDTS	Accumulated depreciation divided by total assets	Prowess IQ. https://prowessiq.cmie.com/
LEV	The firm leverage which is the ratio of total debts to total assets	Prowess IQ. https://prowessiq.cmie.com/
TANG	Asset tangibility (PPE), is calculated as the ratio of property, plant, and equipment to total assets.	Prowess IQ. https://prowessiq.cmie.com/
SIZE	Firm size is calculated as the natural log of total assets.	Prowess IQ. https://prowessiq.cmie.com/
GDPG	Annual % growth rate of per capita GDP	World Development Indicators (WDI)
INF	The annual rate of inflation (%)	WDI
Year dummy	Inclusion of year dummy variables to account for differences across years	
Industry dummy	Industry dummies are constructed based on Fama-French 48 industry classification scheme	

^a Norges Bank Investment Management (NBIM) is the asset management unit of the Norwegian central bank (Norges Bank). It manages the Norwegian Government Pension Fund Global.

Table 3
Summary statistics and pairwise correlations.

Panel A: Summary Statistics											
Variables	N	Mean	Median	Std. Dev.	Minimum	Maximum					
Leverage	624	0.4416	0.4264	0.1810	0.0834	0.9736					
SWF Size	624	20.9725	20.9194	1.3992	18.7938	22.9951					
SWF Ownership	624	0.9110	0.4900	0.9626	0.0000	4.9300					
Profitability	624	9.4520	7.8750	7.7104	-8.8700	38.7100					
MTBV	619	6.7634	4.3000	6.5411	0.2900	89.7600					
NDTS	624	0.0267	0.0235	0.0190	0.0001	0.1516					
Tangibility	624	0.2662	0.2446	0.1750	0.0017	0.7715					
Firm size	624	11.5801	11.3927	1.2843	9.0987	16.0898					
GDP growth	624	4.5483	6.6650	5.5007	-7.2500	8.9100					
Inflation	624	4.6817	4.4500	1.1425	3.3300	6.6200					

Panel B: Pairwise correlations											
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Leverage	1.000										
(2) SWF Size	-0.154*** (0.000)	1.000									
(3) SWF Ownership	-0.215*** (0.000)	0.573*** (0.000)	1.000								
(4) Profitability (ROA)	-0.430*** (0.000)	0.180*** (0.000)	0.248*** (0.000)	1.000							
(5) MTBV	0.079* (0.051)	0.085** (0.035)	0.000 (0.991)	0.339*** (0.000)	1.000						
(6) NDTS	-0.099** (0.014)	0.086** (0.031)	0.143*** (0.000)	0.094** (0.019)	0.190*** (0.000)	1.000					
(7) Tangibility	0.127** (0.001)	0.055 (0.173)	0.103** (0.010)	-0.086** (0.031)	0.014 (0.724)	0.628*** (0.000)	1.000				
(8) Firm size	0.155*** (0.000)	0.583*** (0.000)	0.231*** (0.000)	-0.141*** (0.000)	-0.122*** (0.002)	-0.113*** (0.005)	0.040 (0.322)	1.000			
(9) GDP growth	-0.018 (0.646)	-0.035 (0.389)	-0.016 (0.694)	0.030 (0.451)	0.002 (0.954)	-0.047 (0.237)	-0.021 (0.599)	-0.044 (0.271)	1.000		
(10) Inflation	-0.008 (0.850)	0.078* (0.051)	0.035 (0.379)	-0.050 (0.214)	-0.003 (0.948)	0.070* (0.082)	0.030 (0.456)	0.055 (0.169)	-0.590*** (0.000)	1.000	
(11) Financial constraints	-0.150*** (0.000)	-0.003 (0.938)	-0.020 (0.612)	-0.170*** (0.000)	-0.088** (0.029)	-0.098** (0.015)	-0.120*** (0.003)	-0.004 (0.929)	0.027 (0.499)	-0.019 (0.645)	1.000

Panel A of this table reports summary statistics for the variables used in this study. Panel B reports person correlation statistics. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in [Table 2](#).

leverage as the ratio of the firm's total book value of debts to the total book value of assets.

3.3.3. Financial performance measure

We follow past studies (e.g. Refs. [38,43,62,67], on the measure of financial performance. We proxy financial performance using an accounting-based measure i.e., Return on Assets (ROA). ROA allows stakeholders to comprehend how managers have effectively managed the firms' assets to serve the shareholders' economic interests. We did not use Tobin's q, which is a market-based performance because it is a highly noisy measure and less informative of the real activities of the firm. Tobin's q may be influenced by market mispricing following capital market imperfections. Holmstrom and Milgrom [68] contend that a good performance measure should be less noisy and more informative.

3.3.4. Other control variables

In addition to our main explanatory variable, leverage and firm performance could also be affected by some other control variables. We classify these variables into firm-level and country-level variables. We use profitability (ROA), market-to-book value (MTBV), non-debt tax shields (NDTS), tangibility (TANG), and firm size as controls for our first model when leverage is the dependent variable. We exclude profitability and NDTS as controls in our second model when financial performance measured by ROA is the dependent variable. We include two commonly used country-level variables including GDP growth and inflation. Table 2 includes a summary of all the variables and measurements.

4. Empirical results

4.1. Descriptive statistics

Our univariate tests consist of the descriptive statistics of the dependent variable, financial performance and leverage cum moderator variable, independent variable, SWF investments divided into SWF ownership and SWF size, and control variables. Table 3 Panel A provides the summary statistics and correlation matrix. The mean (median) value of leverage from our sample is 0.4416 (0.4264). On average, Norway SWFs hold about 1% (0.9110) ownership stake in Indian firms with a maximum SWF ownership stake of 4.93%. The leverage values in Table 3 Panel A range from 0.08 to 0.973. The mean (median) values for the dependent and independent variables in our sample are 0.4416 (0.4264) for leverage, 20.972 (20.919) for SWF size, 0.9110 (0.4900) for SWF ownership, and 9.4520 (7.8750) for profitability (ROA). So far and on average, firms have about 1% SWF investments in their ownership structure. The mean (median) values for the control variables are in line with previous studies [69–71]. Overall, our sample confirms that firms seek debt capital in their capital structure and have the Norway government invested SWFs of an average of 0.911% with a maximum of 4.93% in Indian firms.

4.2. Correlation matrix

Table 3 Panel B provides the results of the correlation matrix. We perform the correlation matrix to test for linearity and if there is any serious multicollinearity issue. Our results in Table 3 Panel B shows that all the correlation coefficients are in the range of -0.430 and 0.628 , which is less than the 0.80 thresholds suggested by Hair et al. [63], and it indicates that there is no serious multicollinearity problem. The correlation coefficients for the association between SWF ownership, SWF size, and leverage are -0.215 and -0.154 , respectively. This confirms that there are linearities between SWF investments and leverage. We also confirm the linearity of the correlation coefficient of 0.248 for the association between SWF ownership and profitability. Therefore, the results reveal that SWF ownership and size are negatively correlated with the leverage of target firms, consistent with the monitoring hypothesis. Also, it shows that SWF ownership and size are positively related to profitability, which contradicts the political agenda theory but supports the budget constraint theory that SWF creates value for the firm through easy access to bank finance at preferential rates and government bailout programs [39,42,72,73].

Table 4

Best linear unbiased estimator (BLUE) assumptions test.

Variables	Dependent Variables		Return on Assets	
	Leverage		SWF ownership (Model 1)	
	SWF ownership (Model 1)	SWF size (Model 2)	SWF ownership (Model 1)	SWF size (Model 2)
Doornik-Hansen	Chi2 (18) = 9699.85 Prob > Chi2 = 0.000	Chi2 (18) = 9346.31 Prob > Chi2 = 0.000	Chi2 (16) = 8408.4 Prob > Chi2 = 0.000	Chi2 (16) = 8101.53 Prob > Chi2 = 0.000
Wooldridge AR (1)	Wald Chi2 (8) = 5.88 Prob > Chi2 = 0.664	Wald Chi2 (8) = 14.54 Prob > Chi2 = 0.068	Wald Chi2 (8) = 13.76 Prob > Chi2 = 0.557	Wald Chi2 (8) = 12.97 Prob > Chi2 = 0.103
BP/CW Hetttest	Chi2 (1) = 2.53 Prob > Chi2 = 0.111	Chi2 (1) = 1.440 Prob > Chi2 = 0.230	Chi2 (1) = 8.37 Prob > Chi2 = 0.038	Chi2 (1) = 16.41 Prob > Chi2 = 0.001

4.3. OLS assumption tests

We initially attempted to employ the ordinary least square (OLS) estimation technique in the regression procedure. Before that, however, the fundamental assumptions of the OLS were evaluated to determine whether the OLS could produce the best linear unbiased estimator (BLUE). In determining the OLS, three distinct experiments were conducted like Doornik-Hansen test for multivariate normality, the Wooldridge test for autocorrelation and finally Breusch-pagan/Cook-Weisberg test for heteroskedasticity.

The results affirm that the null hypothesis of normality was rejected across all models. This suggests that the OLS assumption of normality was not met. In Wooldridge's test, the null hypothesis is that there is no first-order autocorrelation. All models in Table 4 satisfied the assumption of no autocorrelation, hence the null hypothesis was rejected. The null hypothesis of constant variance among the error terms was rejected since only model (1) (2) partially satisfied the assumption of homoscedasticity. In line with Ghouma and Ouni [10], we addressed heteroskedasticity and accounted for time series dependence by using the standard error estimation methodology. We achieve this by ensuring that all p-values of our estimates are robust to standard errors using the Stata robust command. In addition, we also adjust for double clustering on our panel dimensions and use include year and industry fixed effects to account for time and industry-invariant characteristics in the regression analysis, in line with [39]. Therefore, we confirm that our model estimations conform with OLS regression assumptions.

4.4. Regression estimates – baseline results

To confirm our hypotheses, we analyze the impact of Norway's SWF investments (SWF ownership and SWF size) on the leverage of their target firms by performing a fixed-effect regression with leverage and return on assets as the dependent variables, and SWF ownership and SWF size as the main independent variables, and the core determinants of leverage as the control variables (i.e., to avoid omitted variable bias).

Table 5 provides the regression results for SWF investments, leverage, and financial performance after controlling for industry and year effects. Table 5, model (1) includes the SWF ownership and control variables while Model (2) includes the SWF size. The findings reveal that SWF ownership and SWF size reduce leverage with coefficient values of -0.0202 and -0.0312 , respectively, significant at the 1% level, which conform with existing SWF literature [14–18]. This supports the monitoring hypothesis and suggests that SWFs serve as an alternative mechanism to reduce the agency cost associated with additional debt usage. Our findings are in line with Boubakri et al. [74], which suggest that government-owned firms have significantly lower leverage, lower equity issues, and higher cash holdings. Large sizeable stakes require higher monitoring mechanisms to deliver higher profits by avoiding debt finance expenses, especially in periods of economic uncertainty when the costs of debt markets are quite high and unfavourable [18,36,38].

Concerning the return on assets model, the results show that while SWF size increases ROA, supporting the study of Kotter et al. [18]. Findings also show that SWF ownership reduces ROA, consistent with the political agenda theory, and connotes that SWF ownership by the government may impose extra political agendas in a way to extract rents from target firms, thereby increasing agency problems. In addition, all the control variables follow expected signs either supporting the pecking order theory or the trade-off theory of capital structure. First, firm size is positive and significant, suggesting that large firms are faced with more diversifications, they thus experience lower default risk meaning high default risks for small firms Gupta et al. [75], supporting the trade-off theory. Second,

Table 5
SWF investments, leverage, and financial performance.

	Leverage		Return on Assets	
	Model (1)	Model (2)	Model (1)	Model (2)
SWF Ownership	-0.0202^{***} (0.0023)		-0.0882^{**} (0.0118)	
SWF Size		-0.0312^{***} (0.0000)		0.1445^{***} (0.0000)
Profitability	-0.0105^{***} (0.0000)	-0.0087^{***} (0.0000)		
Leverage			-0.8948^{***} (0.0000)	-0.7701^{***} (0.0000)
MTBV	0.0045^{***} (0.0000)	0.0051^{***} (0.0000)	0.0250^{***} (0.0000)	0.0222^{***} (0.0000)
NDS	-2.1312^{***} (0.0000)	-1.8127^{***} (0.0000)		
Tangibility	0.2223^{***} (0.0000)	0.2140^{***} (0.0000)	-0.1814 (0.3163)	-0.2807 (0.1165)
Firm size	0.0076 (0.1234)	0.0329^{***} (0.0000)	-0.0655^{**} (0.0131)	-0.1521^{***} (0.0000)
GDP growth (annual %)	-0.0058^* (0.0544)	-0.0036 (0.2249)	-0.0104 (0.5201)	-0.0195 (0.2259)
Inflation	-0.0637^* (0.0509)	-0.0384 (0.2356)	-0.1356 (0.4360)	-0.2466 (0.1539)
Constant	0.8293^{***} (0.0000)	1.0012^{***} (0.0000)	2.7430^{**} (0.0101)	1.4069 (0.1887)
Observations	619	619	591	591
R-squared	.3431	.3660	.3175	.3379
Adj R ²	.3268	.3502	.3009	.3218
F-stat	21.0009	23.2029	19.1416	20.9962
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

P-values are in parentheses; $***p < .01$, $**p < .05$, $*p < .1$. P-values are robust to serial correlation concerns.

This table reports the regression results of Norway's sovereign wealth fund, leverage, and financial performance. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. Models (1) and (2) are basic models, where independent variables are NSWF ownership and Size of ownership. $***$, $**$, $*$ indicate significance levels at 1%, 5% and 10% respectively.

profitability significantly decreases leverage, which supports the proposition that high-profitability firms will make use of retained earnings and other equity capital more and have less concern for debt, unlike low-profitability firms that require more debt [75].

Third, NDTs is negative and significant but contradicts the assumption of the trade-off theory that firms derive tax benefits through the interest tax shield for taking higher debt capital. This may plausibly suggest that SWF target firms reduce debt despite its benefits in the presence of government ownership. Fourth, tangibility is positive and significant suggesting that target firms need to invest in more collateral to secure more debts and which may also affect positively the value of equity owners. In a way to reduce the negative implications of political agendas of government and increase the value of equity as geared firms [76], target firms seek additional debt. GDP growth and Inflation are negative, suggesting that higher inflation increases the cost of borrowings and thereby restricts firms from seeking more debt.

4.5. Results of moderating analysis

Furthermore, following the assertion that SWF ownership reduces financial performance, in support of the political agenda theory, and that debt could act as a disciplinary mechanism (Jensen & Meckling [24]), we further test whether leverage could attenuate the negative impacts of SWF ownership on financial performance. Our results as depicted in Table 6 show that the interaction of SWF ownership and leverage increases ROA, suggesting that leverage could play a monitoring role in reducing the political agenda effects of government on financial performance. Without interacting leverage with SWF ownership and size, SWF size is positive and significant with ROA while SWF ownership is negatively significant. These relationships reverse after interacting leverage with SWF size and ownership. We find that leverage positively moderates the relationship between SWF ownership and ROA, indicating that it attenuates the negative impacts of government political agendas on ROA, plausibly by reducing government control power, supporting the assertion of Jensen and Meckling and Gul et al. [24,33] that debt serves as a disciplinary mechanism. Debts are issued when target firms experience lower firm value due to the passivity of SWFs [32].

4.6. Robustness tests

4.6.1. Alternative measure of SWF ownership

We examine the robustness of our main results by performing a battery of sensitivity tests. First, in the main findings, we employed the measure of SWF ownership as the percentage of ownership stake by the Norway government. However, in the literature, there are other proxies. We further provide an alternative measure of SWF ownership by Fernandes [38] as the ratio of sovereign wealth ownership in the target firm to the market capitalization of the target firm. As depicted in Table 7, we find that SWF ownership is negative and significant at the 1% level with leverage. This supports our main results that SWF ownership negatively impacts leverage. The magnitude of the coefficient of SWF ownership on leverage is higher in the main findings than in the latter findings using the alternative measure of SWF ownership.

4.6.2. The role of budget constraints theory on SWF investments

There are other theories such as the budget constraints theory that SWF is a value-adding strategy for target firms Boubakri &

Table 6
Moderating analysis – SWF size*leverage, SWF ownership*leverage on ROA.

	(1)	(2)
	Return on Assets	Return on Assets
SWF Size	0.1172*** (0.0001)	
SWF Ownership		-0.1264*** (0.0003)
Leverage	-0.7419*** (0.0000)	-0.9634*** (0.0000)
SWF Size*Leverage	-0.1147** (0.0198)	
SWF Ownership*Leverage		0.3723*** (0.0092)
MTBV	0.0239*** (0.0000)	0.0214*** (0.0000)
Tangibility	-0.0664 (0.7389)	-0.3293* (0.0877)
Firm size	-0.1645*** (0.0000)	-0.1008*** (0.0007)
GDP growth (annual %)	-0.0170 (0.2618)	-0.0128 (0.3962)
Inflation	-0.2264 (0.1662)	-0.1561 (0.3338)
Constant	2.3282** (0.0251)	3.3714*** (0.0009)
Observations	591	591
R-squared	.4389	.4389
Adj R ²	.4013	.4046
F-stat	11.6891	12.792
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes

P-values are in parentheses; ***p < .01, **p < .05, *p < .1. P-values are robust to serial correlation concerns.

This table reports the moderating role of leverage on Norway's sovereign wealth fund and performance. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. Models (1) and (2) are basic models, where independent variables are NSWF ownership leverage and Size of ownership. ***, **, * indicate significance levels at 1%, 5% and 10% respectively.

Table 7
An alternative measure of SWF ownership and the role of SWF ownership on financial constraint.

	(1)	(2)
	LEVERAGE	Return on Assets
SWF Ownership	-0.0121*** (0.0011)	-0.1710*** (0.0527)
Financial constraint		-0.2719*** (0.065)
Financial constraint*SWF Ownership		0.1414** (0.0687)
Leverage		-0.7894*** (0.0748)
Profitability	-0.0094*** (0.0000)	
MTBV	0.0046*** (0.0000)	0.0227*** (0.0034)
NDTS	-1.9900*** (0.0000)	
Tangibility	0.2246*** (0.0000)	-0.1724 (0.2040)
Firm size	0.0152*** (0.0012)	-0.0543* (0.0292)
GDP growth (annual %)	-0.0058* (0.0526)	-0.0042 (0.0157)
Inflation	-0.0636* (0.0547)	-0.0795 (0.1689)
Constant	0.7207*** (0.0004)	2.2913** (1.0370)
Observations	619	591
R-squared	.3427	.3734
Adj R ²	.3264	.3457
F-stat	20.1154	13.4685
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes

P-values are in parentheses; ****p* < .01, ***p* < .05, **p* < .1. *P*-values are robust to serial correlation concerns.

This table reports the regression results of Norway's sovereign wealth fund and leverage. It also provides the regression results of Norway's sovereign wealth fund and performance on the criteria of financial constraint. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. Model (1) represent the alternative measure of Norway's sovereign wealth fund. Model (2) represents the effect of Norway's sovereign wealth fund on financial constraint firms. ***, **, * indicate significance levels at the 1%, 5% and 10% respectively.

Saffar; Kornai and Kornai et al. [42,72,73], and that the theory has been used to address SWF investments with the cost of debt. SWF target firms benefit from easy access to finance especially in times of financial crisis and in times of higher probability of financial distress since SWF investments create value for target firms [39]. Implicit bailout guarantee is more pronounced for target firms in times of distress [39,42]. Motivated by these works, we empirically test whether SWF ownership could address financial constraints in target firms. As depicted in Table 7 Model 2, we find that financial constraint negatively reduces ROA significantly. However, after moderating for SWF ownership (i.e., financial constraint*SWF ownership), our findings reveal a positive relationship with ROA, suggesting that SWF ownership is more advantageous in times of financial constraints in attenuating such constraint problem but seems to be disadvantageous without a bailout goal and protection support as noted by Ge et al. [77].

4.6.3. Distribution analysis of SWF ownership

We further validate the monitoring hypothesis and political agenda theory by performing the distribution analysis of SWF investments to establish the SWF ownership threshold where government exercise their monitoring responsibilities, and at what threshold of SWF ownership the government exercise their political and expropriation agendas. We perform a distribution analysis of SWF on financial performance by ownership percentage at 1%, 2%, 3%, and 4% and above.

The results are provided in Table 8. We find that at a lower level of SWF ownership, the use of debt capital is less, suggesting that SWF target firms use more debt as the SWF ownership reduces and vice-versa. Similarly, we also find that as the SWF ownership stake increases from 2% and above, SWF ownership exerts a negative impact on return on assets, indicating that high SWF ownership percentage impacts firms' performance negatively. This suggests that target firms exhibit the monitoring hypothesis at SWF ownership of 2% and below. In contrast, there is the presence of government expropriation interests and political agendas as the percentage of SWF ownership increases above 2% since firms experience a low return on assets.

4.6.4. Endogeneity

Endogeneity is a concern when there is a violation of the assumption that the error term is uncorrelated with the explanatory variables. Thus, we perform two tests to address and mitigate any possible endogeneity concerns. First, we employ the instrumental variable (IV) estimation approach using the 2SLS regression analysis to establish that our findings do not suffer from endogeneity in the SWF ownership and SWF size. This involves two steps. In the first step, we regress SWF ownership and SWF size on the control variables and instrument (Table 9, Models 1 & 2). As a practice, we follow past studies ([78,79]) on the use of lag values of the explanatory variables as instruments (i.e., lagged of SWF ownership and SWF size). Haga et al. [79], submit that the lagged dependent variable is uncorrelated with the error term. We generated a predicted value (i.e., SWF_Hat) from the estimation in the first step and replace it with SWF ownership in the baseline model (Table 9, Models 3 & 4). Overall, our instruments are positively related to the endogenous variable while the SWF_Hat generated in our first model has a significant negative relationship with leverage, thus, confirming our baseline regression results.

Second, we re-estimate our endogeneity test using the lead-lag regression approach. This approach has been used in past studies to address endogeneity concerns [80,81]. First, we calculated the lagged values (t-1) of all the explanatory variables and then re-run the

Table 8
Sovereign wealth fund distribution, leverage, and financial performance by ownership percentage.

	Leverage				Return on Assets			
	SWF = 1%	SWF = 2%	SWF = 3%	SWF = 4%	SWF = 1%	SWF = 2%	SWF = 3%	SWF = 4%
SWF Ownership	0.0158 (0.6064)	-0.0496*** (0.0001)	-0.0382*** (0.0000)	-0.0220*** (0.0022)	0.2519 (0.1223)	0.0603 (0.3667)	-0.0704 (0.1318)	-0.0890** (0.0200)
Profitability	-0.0109*** (0.0000)	-0.0103*** (0.0000)	-0.0101*** (0.0000)	-0.0103*** (0.0000)				
Leverage					-0.8428*** (0.0000)	-0.8356*** (0.0000)	-0.8551*** (0.0000)	-0.8754*** (0.0000)
MTBV	0.0045*** (0.0000)	0.0044*** (0.0000)	0.0045*** (0.0000)	0.0045*** (0.0000)	0.0238*** (0.0000)	0.0247*** (0.0000)	0.0241*** (0.0000)	0.0246*** (0.0000)
NDTS	-2.3995*** (0.0000)	-2.0243*** (0.0000)	-2.0287*** (0.0000)	-2.1678*** (0.0000)				
Tangibility	0.2062*** (0.0002)	.1981*** (0.0000)	.2338*** (0.0000)	0.2314*** (0.0000)	-0.1243 (0.5571)	-0.2161 (0.2527)	-0.2782 (0.1367)	-0.2130 (0.2429)
Firm size	0.0066 (0.2669)	0.0101** (0.0486)	0.0075 (0.1285)	0.0068 (0.1702)	-0.1074*** (0.0005)	-0.0760*** (0.0052)	-0.0628** (0.0186)	-0.0625** (0.0184)
GDP growth (annual %)	-0.0050 (0.1798)	-0.0031 (0.3284)	-0.0040 (0.1929)	-0.0051* (0.0905)	-0.0343* (0.0833)	-0.0263 (0.1205)	-0.0156 (0.3446)	-0.0124 (0.4490)
Inflation	-0.0446 (0.2709)	-0.0290 (0.4011)	-0.0396 (0.2316)	-0.0540 (0.1003)	-0.3974* (0.0642)	-0.3047* (0.0972)	-0.1788 (0.3153)	-0.1651 (0.3478)
Constant	0.7480*** (0.0031)	0.6166*** (0.0038)	0.6832*** (0.0008)	0.7746*** (0.0001)	4.7286*** (0.0004)	3.8833*** (0.0006)	3.0432*** (0.0055)	2.9283*** (0.0066)
Observations	425	543	592	612	409	520	565	584
R-squared	.3682	.3607	.3482	.3410	.3223	.3077	.3071	.3132
Adj R ²	.3450	.3425	.3313	.3244	.2982	.2885	.2894	.2963
F-stat	15.8885	19.8214	20.5178	20.5624	13.382	16.0312	17.4079	18.5374
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

P-values are in parentheses; ***p < .01, **p < .05, *p < .1. P-values are robust to serial correlation concerns.

This table reports the regression results of Norway's sovereign wealth fund ownership, leverage, and financial performance at 1%, 2%, 3%, and 4% levels of ownership. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. ***, **, * indicate significance levels at 1%, 5% and 10% respectively.

Table 9
2SLS (Two-stage least square).

	SWF Ownership		SWF Size		Leverage		Return on Assets	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
SWF Ownership _{t-1}	0.5449*** (0.0000)				0.5500*** (0.0000)			
SWF Size _{t-1}		0.4904*** (0.0000)				0.5021*** (0.0000)		
SWF Ownership_Hat			-0.0331*** (0.0031)				-0.1540** (0.0141)	
SWF Size_Hat				-0.0209** (0.0318)				0.1715*** (0.0011)
Profitability	-0.0071 (0.1383)	0.0279*** (0.0000)	-0.0115*** (0.0000)	-0.0100*** (0.0000)				
Leverage					-0.0476 (0.5332)	-0.4737*** (0.0000)	-0.8842*** (0.0000)	-0.7564*** (0.0000)
MTBV	-0.0066* (0.0724)	0.0064 (0.1361)	0.0049*** (0.0000)	0.0056*** (0.0000)	-0.0083** (0.0155)	0.0177*** (0.0000)	0.0238*** (0.0000)	0.0226*** (0.0000)
NDTS	-0.0822 (0.9720)	5.0801* (0.0638)	-1.6396*** (0.0001)	-1.5210*** (0.0004)				
Tangibility	0.0310 (0.9063)	-0.1394 (0.6500)	0.1433*** (0.0027)	0.1481*** (0.0020)	0.0660 (0.7388)	0.2751 (0.2350)	-0.0411 (0.8399)	-0.0984 (0.6294)
Firm size	-0.0942*** (0.0009)	0.3968*** (0.0000)	0.0037 (0.4907)	0.0242*** (0.0043)	-0.0859*** (0.0022)	0.3819*** (0.0000)	-0.0929*** (0.0023)	-0.1797*** (0.0001)
GDP growth (annual %)	-0.0013 (0.9326)	0.0930*** (0.0000)	-0.0060** (0.0275)	-0.0046 (0.1049)	-0.0010 (0.9472)	0.0868*** (0.0000)	-0.0093 (0.5453)	-0.0207 (0.1860)
Inflation	-0.0325 (0.8411)	1.2125*** (0.0000)	-0.0663** (0.0246)	-0.0495 (0.1060)	-0.0272 (0.8664)	1.1499*** (0.0000)	-0.1248 (0.4487)	-0.2627 (0.1203)
Constant	1.2360 (0.2286)	-2.1927* (0.0971)	0.8424*** (0.0000)	0.9094*** (0.0000)	0.9802 (0.3364)	-2.0398 (0.1229)	3.0619*** (0.0034)	1.5965 (0.1442)
Observations	618	618	618	618	618	618	590	590
R-squared	.4484	.6619	.4884	.4847	.4466	.6603	.4199	.4247
Adj R ²	.4132	.6403	.4558	.4518	.4123	.6393	.3821	.3873
F-stat	12.741	30.6826	14.9644	14.7451	13.0242	31.3759	11.1187	11.3417
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

P-values are in parentheses; ***p < .01, **p < .05, *p < .1. P-values are robust to serial correlation concerns.

This table reports the results through 2SLS to address endogeneity concerns using the lagged SWF as an instrument to mitigate the endogeneity relationship between Norway's sovereign wealth fund, leverage, and performance. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. ***, **, * indicate significance levels at 1, 5 and 10% respectively.

baseline model. Our results (Table 10, Models 1 & 2) are robust to the baseline findings for the impacts of SWF ownership and size on leverage and financial performance.

5. Conclusion

This paper broadens prior studies on the capital structure of target firms with ethical institutional ownership by investigating Norway SWF ownership and size in relation to leverage and financial performance. We also investigate whether leverage serves as a disciplinary control mechanism in attenuating the negative effects of political agenda theory on the link between SWF investments and financial performance. We hypothesize, following the monitoring hypothesis, that SWF ownership and size increase leverage and financial performance, and that the use of leverage signals a control mechanism to manage the problems of possible political agendas of the Norway government. Using a sample of 104 Indian firms targeted by Norway's sovereign wealth fund and taking into consideration core determinants of leverage as control variables, as well as year fixed and industry effects. We provide evidence that SWF ownership and SWF size reduce leverage. Also, we establish that while SWF size increases financial performance, SWF ownership reduces it. Our results are robust on a battery of sensitivity tests, including, SWF distributional and threshold analysis, different approaches to address endogeneity, alternative measures of SWF ownership, and the channel through which SWF investments could affect leverage and financial performance – through reducing financial constraint. We also provide evidence of a threshold level where SWF as an institutional investors' monitoring mechanism influences corporate financing decisions negatively. We establish that SWF ownership of 2% and below enhances financial performance, supporting the monitoring hypothesis, and while above 2% SWF ownership stake, profitability drops significantly, supporting the political agenda hypothesis. Interestingly, we further document that the use of debt financing would reduce the negative effect of political agendas on the firm's financial performance, suggesting that as the firm's SWF ownership exceeds 2%, the firm must decide on taking further debt to attenuate government opportunism behaviour.

The results of this study have practical implications on whether SWF investments impact leverage and importantly, how leverage serves as a monitoring mechanism in controlling the political agenda goals of sovereign governments in target firms. We document that the target firms by SWFs with more SWF investments in their ownership structure reduce their decisions to go for additional debts in the debt markets. In turn, the presence of SWF investments negatively impacts the financial risks that stockholders would have faced if the target firms have gone for additional debts. It also has a positive impact on access to the capital market, thus, reducing the cost of equity finance due to implicit bailout guarantee (e.g., Boubaker et al. [74]).

With this study, we contribute to an emerging SWF literature that highlights the importance of sovereign government ownership in the financing choice of target firms [6,39,42,74,77]. We also contribute to the consequences of CG mechanisms alleviating SWF investments when sovereign governments exercise their political agenda goals by exhausting target firms' financial resources. Unlike, Chen et al. [59] that conduct the CG impact on SWF cross-border investments, we contribute to corporate monitoring literature by using leverage as a finance-related monitoring mechanism through which the expropriation returns to sovereign governments could be curtailed, and as a result, increase target firms' profits. Target firms are more willing to take additional debts with an increasing percentage of SWF ownership to avoid political agenda goals and strengthen stakeholders' value creation.

Lastly, we confirm that SWF ownership reduces financial constraints by increasing return on assets, supporting the reduced financial constraints hypothesis that SWF investments create value through direct equity capital infusions. Our findings have

Table 10
Lead-lagged model.

	(1)	(2)	(1)	(2)
	Leverage	Leverage	Return on Assets	Return on Assets
SWF Ownership $t - 1$	-0.0138** (0.0457)		-0.0977*** (0.0081)	
SWF Size $t - 1$		-0.0185*** (0.0019)		0.1217*** (0.0001)
Leverage $t - 1$			-0.6610*** (0.0000)	-0.5576*** (0.0000)
MTBV $t - 1$	0.0044*** (0.0000)	0.0047*** (0.0000)	0.0203*** (0.0000)	0.0185*** (0.0000)
Tangibility $t - 1$	0.1883*** (0.0001)	0.1832*** (0.0001)	-0.0792 (0.6817)	-0.1806 (0.3484)
Firm size $t - 1$	0.0078 (0.1297)	0.0229*** (0.0005)	-0.0872*** (0.0018)	-0.1584*** (0.0000)
GDP growth (annual %) $t - 1$	0.0013 (0.3997)	0.0018 (0.2634)	0.0055 (0.5215)	0.0039 (0.6438)
Inflation $t - 1$	-0.0031 (0.7285)	-0.0004 (0.9669)	0.0337 (0.4853)	0.0233 (0.6284)
Profitability $t - 1$	-0.0087*** (0.0000)	-0.0077*** (0.0000)		
NDTS $t - 1$	-1.9981*** (0.0000)	-1.8135*** (0.0001)		
Constant	0.4458*** (0.0000)	0.6203*** (0.0000)	2.2218*** (0.0000)	0.5380 (0.3419)
Observations	618	618	590	590
R-squared	.274	.2807	.2263	.2365
Adj R ²	.2559	.2628	.2074	.2179
F-stat	15.144	15.663	12.0121	12.722
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

P-values are in parentheses; ***p < .01, **p < .05, *p < .1. P-values are robust to serial correlation concerns.

This table reports the results of the Lead-lagged model to mitigate the endogeneity relationship between Norway's sovereign wealth fund, leverage, and performance. The sample consists of 104 Indian firms targeted by Norway's sovereign wealth fund for 2016–2021. Variable description and data sources are presented in Table 2. ***, **, * indicate significance levels at 1%, 5% and 10% respectively.

significant implications for researchers and practitioners alike. Theoretically, our study provides evidence for previous theories on leverage, we highlight that the monitoring hypothesis and political agenda theory could further explain the determinants of leverage in target firms. Our findings also suggest that SWF investments have positive effects on firms' performance indicators at certain thresholds of SWF ownership. However, as the ownership percentage increases further, government exercise their expropriation agendas, thereby, making firms experience the negative effects of SWF investment. Interestingly, our findings suggest that leverage could act as a disciplinary mechanism when the SWF ownership reaches the stage at which government exercise their political and expropriation agendas. It would be interesting if future research could advance this study by examining a quadratic function between SWF and corporate outcomes, and how these SWF investments influence the target leverage of firms to know whether there is a shift in the firm's speed of adjustment following different SWF ownership percentage and size impacts.

Author contribution statement

Shahida Rasheed, Yusuf Adeneye, Ruzanifah Kosnin: Conceived and designed the analysis; Analyzed and interpreted the data; Contributed analysis tools or data; Wrote the paper.

Data availability statement

Data will be made available on request.

Additional information

Supplementary content related to this article has been published online at [URL].

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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