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DEBT-TO-EQUITY RATIO IN MNCS CAPITAL STRUCTURE

КОЕФІЦІЄНТ СПІВВІДНОШЕННЯ БОРГУ ДО ВЛАСНОГО КАПІТАЛУ В СТРУКТУРІ КАПІТАЛУ БНП

Summary. *Introduction. The capital structure of multinational corporations (MNCs) significantly influences their overall risk, valuation, and financial performance [6]. Among various measures to evaluate capital structure, the Debt-to-Equity (D/E) ratio emerges as a central metric. It quantifies the extent to which a corporation relies on debt financing relative to equity financing [4]. In practice, maintaining an optimal D/E ratio is critical, as it directly affects the firm's risk profile, cost of capital, and attractiveness to investors and creditors [5]. This study investigates the implications of different capital structure theories through analysis of historical D/E ratios in periods of economic turbulence.*

Purpose. the purpose of this research is to explore the practical implications of MNE capital structure theories by analyzing the historical trends and fluctuations of the Debt-to-Equity (D/E) ratio of U.S. nonfinancial corporations, particularly during economic crises. It aims to distinguish between accounting-driven and cash-flow-driven changes in D/E to provide a clearer understanding of corporate financial strategies under stress conditions.

Materials and methods. The study utilizes historical data on the Debt-to-Equity ratios of U.S. nonfinancial corporations spanning from 1961 to 2021, sourced from Annual tables of integrated macroeconomic accounts for the United States [3]. Two distinct measures of D/E ratios are analyzed: classical D/E ratios, inclusive of accounting-based adjustments, and incremental D/E ratios, reflecting purely cash-flow-based financing activities [14]. Comparative analysis is performed across multiple financial crises, notably the 2007–2008 global financial crisis, the 2011 European sovereign debt crisis, the 2014–2015 commodity crisis, and the 2018 global trade tensions [3; 8; 14].

Results. The analysis reveals significant volatility in classical D/E ratios during crisis periods, primarily driven by accounting adjustments such as asset impairments and equity revaluations [14]. In contrast, incremental D/E ratios displayed relatively moderate fluctuations, emphasizing stability in actual financial decisions involving debt issuance or repayment and equity transactions [14]. Notably, classical D/E ratios increased dramatically during the 2008 financial crisis, whereas incremental ratios showed modest changes, suggesting substantial accounting distortions [8; 14].

Discussion. The findings indicate that accounting-based leverage metrics (classical D/E ratios) frequently overstate corporate financial vulnerability during economic crises due to their sensitivity to non-cash accounting adjustments [14]. Incremental D/E ratios, however, provided more consistent and economically meaningful insights into corporations' strategic responses to crises [14]. This highlights the necessity for analysts, investors, and rating agencies to incorporate incremental D/E ratios alongside traditional measures to better assess true financial stability and risk exposure [1; 13; 14].

Future research should investigate specific variations in the responsiveness of classical and incremental D/E ratios to economic shocks [2; 7]. Additionally, examining international differences influenced by varying accounting standards (such as IFRS vs. US GAAP) could yield important insights [14]. Further studies might also focus on incorporating qualitative factors, such as managerial behavior and investor sentiment, to enrich the understanding of capital structure adjustments during economic uncertainty [9; 11].

Key words: *Debt-to-Equity Ratio (D/E), financial decision-making, multinational corporations, MNC, capital structure, financing decisions, risk management, corporate finance.*

Анотація. *Вступ. Структура капіталу багатонаціональних корпорацій (БНП) суттєво впливає на загальний рівень ризику, оцінку та фінансові результати їхньої діяльності [6]. Серед різних показників для оцінювання структури капіталу ключовим є коефіцієнт боргу до власного капіталу (D/E). Він визначає ступінь залежності компанії від боргового фінансування порівняно з власним капіталом [4]. На практиці підтримання оптимального рівня D/E є критичним, оскільки він безпосередньо впливає на профіль ризику компанії, вартість капіталу та її привабливість для інвесторів і кредиторів [5]. Це дослідження вивчає практичні наслідки різних теорій структури капіталу шляхом аналізу історичних значень коефіцієнта D/E у періоди економічної нестабільності.*

Мета. Метою цього дослідження є вивчення практичних наслідків різних теорій структури капіталу БНП шляхом аналізу історичних тенденцій і коливань коефіцієнта боргу до власного капіталу (D/E) у нефінансових корпораціях США, особливо під час економічних криз. Дослідження має на меті порівняти зміни у рівні коефіцієнта боргу до власного капіталу (D/E) від нематеріальних переоцінок проти чистих грошових потоків, щоб краще зрозуміти корпоративні фінансові стратегії в умовах нестабільності.

Матеріали та методи. У дослідженні використовуються історичні дані про коефіцієнти D/E нефінансових корпорацій США за період з 1961 по 2021 рік, отримані з Річних таблиць інтегрованих макроекономічних рахунків Сполучених Штатів [3]. Аналізуються два окремі показники коефіцієнта D/E: класичний, що включає бухгалтерські коригування, та інкрементний, що відображає виключно фінансові операції, засновані на грошових потоках [14]. Проводиться порівняльний аналіз за періодами фінансових криз, зокрема глобальної фінансової кризи 2007–2008 рр., європейської боргової кризи 2011 р., сировинної кризи 2014–2015 рр. та глобальних торговельних напружень 2018 року [3; 8; 14].

Результати. Аналіз виявив значну волатильність класичного коефіцієнту D/E під час кризових періодів, головним чином через бухгалтерські переоцінки, такі як знецінення активів і переоцінка власного капіталу [14]. На противагу цьому, інкрементний коефіцієнт D/E демонстрував помірні коливання, підкреслюючи стабільність реальних фінансових рішень щодо випуску або погашення боргу та операцій з власним капіталом [14]. Зокрема, класичний коефіцієнт D/E різко зріс під час фінансової кризи 2008 року, тоді як інкрементнтй показав незначні зміни, що свідчить про суттєві бухгалтерські спотворення [8; 14].

Перспективи. Результати свідчать, що бухгалтерські показники фінансового важеля (класичні коефіцієнти D/E) часто перебільшують фінансову вразливість корпорацій під час економічних криз через їхню чутливість до негрошових бухгалтерських коригувань [14]. Водночас інкрементний коефіцієнт D/E надає більш стабільну і економічно змістовну інформацію щодо стратегічної реакції корпорацій на кризові явища [14]. Це вказує на необхідність для аналітиків, інвесторів і рейтингових агентств використовувати інкрементний коефіцієнт D/E поряд із традиційним для точнішої оцінки фінансової стабільності та ризиків [1; 13; 14].

Подальші дослідження мають зосередитися на специфічних відмінностях у реакції класичного та інкрементного коефіцієнту D/E на економічні шоки [2; 7]. Крім того, вивчення міжнародних відмінностей, зумовлених різницею у стандартах обліку (наприклад, МСФЗ та US GAAP), може дати важливі висновки [14]. Подальші дослідження також можуть враховувати якісні фактори, такі як поведінка менеджменту та настрої інвесторів, для поглиблення розуміння коригувань структури капіталу в умовах економічної невизначеності [9; 11].

Ключові слова: *коефіцієнт боргу до власного капіталу (D/E), прийняття фінансових рішень, багатонаціональні корпорації, БНП, структура капіталу, фінансові рішення, управління ризиками, корпоративні фінанси.*

Problem statement. The Debt-to-Equity (D/E) ratio is a critical metric for evaluating the capital structure of multinational corporations, calculated by dividing total debt by total shareholders' equity. It reflects the proportion of a firm's financing derived from borrowing versus equity, offering insights into its financial leverage and risk profile. While moderate leverage can amplify returns for equity holders when project returns exceed debt costs, excessive debt raises default risks, necessitating a careful balance. The interpretation of the D/E ratio is further complicated by factors such as tax shields, bankruptcy costs, and agency problems, which influence its impact on firm value. Beyond internal decision-making, the D/E ratio is closely scrutinized by investors, creditors, and rating agencies as a key indicator of financial stability and creditworthiness. In practice, firms must weigh the tax advantages of debt against the potential for financial distress, while also accounting for strategic considerations like growth opportunities and market conditions. This study seeks to examine the multifaceted role of the D/E ratio, its theoretical foundations, and its practical implications, particularly during economic crises, to provide a deeper understanding of how multinational corporations optimize their capital structures.

Literature Review. The study of capital structure and its implications for corporate finance has been a cornerstone of financial economics, with seminal works shaping both theoretical frameworks and empirical analyses. Modigliani and Miller (1958) laid the groundwork with their proposition that, in a perfect market, a firm's capital structure does not influence its value. Their theory, emphasizing the irrelevance of debt-equity mix under idealized conditions, sparked decades of research aimed at understanding real-world deviations from this benchmark. However, Myers (1984) challenged this view by introducing the "capital structure puzzle", suggesting that firms' persistent preference for debt over equity contradicts theoretical

expectations, thus prompting further exploration into market imperfections and behavioral factors.

Building on this foundation, Altman (1968) shifted focus toward practical applications, developing a predictive model using financial ratios and discriminant analysis to assess corporate bankruptcy risk. This work underscored the importance of financial health indicators, offering a tool that remains influential in credit risk assessment. Similarly, Jensen (1986) explored the agency costs of free cash flow, arguing that excess cash can lead to managerial inefficiencies, particularly in the context of takeovers, thus linking capital structure to corporate governance dynamics.

Empirical investigations have further enriched the field. Rajan and Zingales (1995) provided a comparative analysis of capital structure across countries, revealing how institutional and economic differences, such as tax policies and legal systems, shape financing choices. Complementing this, Graham and Harvey (2001) offered a practitioner's perspective through a survey of financial executives, highlighting the interplay between theoretical models and real-world decision-making. Their findings suggest that factors like financial flexibility and market conditions often outweigh strict adherence to theoretical optima.

The role of market timing and macroeconomic factors has also garnered attention. Baker and Wurgler (2002) posited that firms adjust their capital structure by timing equity issuances to favorable market conditions, a notion supported by Korajczyk and Levy (2003), who found that macroeconomic variables and financial constraints significantly influence leverage decisions. Similarly, the Federal Reserve provides macroeconomic data on U.S. nonfinancial corporate businesses, offering a broader context for understanding how aggregate trends affect firm-level financing.

Delving into specific determinants, Frank and Goyal (2009) identified reliable factors, such as firm size, profitability, and tangibility, that consistently drive capital structure decisions, refining the scope of empirical inquiry. Graham and Leary (2011) synthesized these developments in a comprehensive review, charting the evolution of capital structure research and pinpointing avenues for future study, including the integration of behavioral finance. Meanwhile, Margaritis and Psillaki (2010) explored the nexus between capital structure, equity ownership, and firm performance, suggesting that ownership concentration can mitigate agency conflicts and enhance efficiency.

The consequences of capital structure choices are equally critical. Opler and Titman (1994) demonstrated that financial distress, often tied to high leverage, adversely affects corporate performance, particularly during economic downturns. More recently, Tsyganov and Sinitsyn (2023) examined the performance composition of U.S. non-financial corporations, linking capital structure to broader economic outcomes and reinforcing the relevance of these dynamics in contemporary settings.

Collectively, this body of literature illustrates the multifaceted nature of capital structure, encompassing theoretical foundations, empirical determinants, and practical implications. From Modigliani and Miller's (1958) idealized framework to Altman's (1968) predictive tools and beyond, the field continues to evolve, addressing both firm-specific and macroeconomic influences on financing decisions.

Purpose. The purpose of this research is to explore the practical implications of MNE capital structure theories by analyzing the historical trends and fluctuations of the Debt-to-Equity (D/E) ratio in U.S. nonfinancial corporations, particularly during economic crises. It aims to distinguish between accounting-driven and cash-flow-driven changes in D/E to provide a clearer understanding of corporate financial strategies under stress conditions.

Materials and methods. The study utilizes historical data on the Debt-to-Equity ratios of U.S. nonfinancial corporations spanning from 1961 to 2021, sourced from integrated macroeconomic accounts provided by the Federal Reserve Bank of St. Louis [3]. Two distinct measures of D/E ratios are analyzed: classical D/E ratios, inclusive of accounting-based adjustments, and incremental D/E ratios, reflecting purely cash-flow-based financing activities [14]. Comparative analysis is performed across multiple financial crises, notably the 2007–2008 global financial crisis, the 2011 European sovereign debt crisis, the 2014–2015 commodity crisis, and the 2018 global trade tensions [3; 8; 14].

Main material. The Debt-to-Equity (D/E) ratio is often regarded as one of the most important measures for assessing the capital structure [6] of a multinational corporation. It is calculated by dividing total debt by total shareholders' equity, and it signals how much of a firm's activities are financed through borrowing versus the portion funded by its owners. While a certain degree of leverage can enhance returns for equity holders if the company's projects yield higher returns than the cost of debt, this advantage must be weighed against the increased default risk when debt levels become too high.

D/E ratio is also used in capital structure assessment, providing insights into a company's leverage and risk profile [6]. A higher D/E ratio indicates that a company relies more heavily on debt financing, which can amplify returns during favorable economic conditions but also increases financial risk during downturns. Conversely, a lower D/E ratio suggests a more conservative approach, with greater reliance on equity financing, which may indicate stability but could also imply underutilization of leverage for growth.

Factors like tax shields, bankruptcy costs, and agency problems make the D/E ratio a significant determinant of MNC value [4]. Empirical research often finds a non-linear relationship between the D/E ratio and firm performance, where moderate levels of

leverage can enhance returns, but excessive debt can lead to financial distress [12].

Furthermore, the D/E ratio is closely monitored by investors, creditors, and rating agencies [13]. A high D/E ratio may deter investors due to perceived risk, while creditors may impose stricter borrowing terms or higher interest rates. Rating agencies use the D/E ratio to assess creditworthiness, with higher ratios often leading to lower credit ratings and increased borrowing costs [1].

In practice, firms must balance the benefits of debt, such as tax deductibility of interest payments, against the risks of financial distress and reduced flexibility [11]. Strategic considerations, including growth opportunities, cash flow stability, and competitive positioning, also play a role in determining the appropriate D/E ratio [9]. Ultimately, the D/E ratio is a dynamic metric that requires continuous evaluation in the context of a firm's operational environment, financial goals, and market conditions.

The D/E ratio is a key metric for investors and creditors. Graham and Harvey (2001) surveyed CFOs and found that maintaining an optimal D/E ratio is a top priority for firms, as it directly impacts their cost of capital and credit ratings [5]. Credit rating agencies, such as Moody's and Standard & Poor's, use the D/E ratio to assess a firm's creditworthiness. A high D/E ratio often leads to lower credit ratings and higher borrowing costs, as it signals increased financial risk (Altman, 1968) [1].

Capital structure theories aim to explain how firms determine the proportion of debt and equity financing, as well as the implications of these choices on firm value, risk, and cost of capital. Various theories provide distinct perspectives on D/E ratio, its significance, optimal level, and impact on firm value:

D/E Ratio in Capital Structure Theories

Introduced by Franco Modigliani and Merton Miller (1958), the Modigliani-Miller (M&M) theorem initially asserts that, under perfect market conditions, without taxes, bankruptcy costs, or information asymmetries, a firm's value remains unaffected by its capital structure [10]. In their later refinement, sometimes referred to as M&M Proposition II, Modigliani and Miller recognized the influence of corporate taxes on this theoretical framework. Their revised model acknowledges that interest payments on debt provide tax-deductible advantages, thus incentivizing higher leverage. However, these benefits come with increased financial distress risks and potential agency costs. Consequently, in practice, firms adapt their capital structures to strike a balance between exploiting tax benefits and mitigating the associated burdens [10].

Markets deviate significantly from perfect conditions due to taxation, financial distress costs, and transaction costs. Consequently, firms actively manage their capital structures to optimize tax advantages, minimize financial distress costs, and align with strategic objectives [4]. During financial crises, such as the 2008 global financial crisis, these imperfections intensify. Crises amplify market frictions like liquidity constraints and heightened uncertainty, challenging the M&M assumption of perfect markets and causing highly leveraged firms to face severe difficulties accessing capital markets [8]. In such times, the debt-to-equity (D/E) ratio may fluctuate more dramatically as firms attempt to rebalance or restructure their finances, often responding to limited credit availability by lowering overall leverage or issuing equity to shore up balance sheets [8].

The Trade-Off Theory builds upon these imperfections, proposing that firms achieve an optimal capital structure by balancing the tax benefits of debt, primarily from interest tax shields, against the risks and costs of financial distress, including bankruptcy [11]. Firms thus select capital structures reflecting industry characteristics and individual risk profiles — profitable firms may adopt higher debt levels to leverage tax benefits, whereas firms in volatile sectors typically maintain lower debt ratios to mitigate bankruptcy risks [2]. Financial crises alter this balance significantly. During downturns, such as the COVID-19 pandemic, the threat of bankruptcy escalates sharply due to declining revenues and economic uncertainty, making debt financing less attractive. However, liquidity shortfalls may force companies to accept additional debt, including government-backed loans, to maintain operational stability [1]. During such crises, D/E ratios can shift quickly: some firms may reduce debt to avoid the heightened risk of distress, whereas others find themselves forced to increase leverage to survive, effectively moving away from their typical optimal trade-off levels [11].

The Pecking Order Theory, formulated by Myers and Majluf (1984), addresses capital structure from the perspective of information asymmetry. Firms prefer financing methods with the lowest information costs, typically using retained earnings first, followed by debt, and resorting to equity only as a last measure [11]. External financing, especially equity issuance, is considered costly due to managers' superior information compared to investors. Therefore, firms with substantial internal resources rarely seek external financing, while those with limited internal funds favor debt over equity to reduce signaling adverse information [13]. During financial crises, internal funds often diminish rapidly, compelling firms toward external financing despite tightened credit conditions and increased borrowing costs. For example, during the 2008 crisis, many firms experienced constrained access to debt markets and faced substantial costs if equity issuance became necessary due to depressed stock prices [8]. Under such circumstances, the D/E ratio can become more volatile: companies that exhaust internal funds may tap additional debt if it remains available,

while others might issue equity, even at unfavorable prices, to prevent insolvency or reduce existing debt levels, thus altering the typical pecking order [11].

The Agency Cost Theory, introduced by Jensen and Meckling, highlights conflicts between managers and shareholders regarding capital structure decisions [7]. Debt acts as a disciplinary mechanism to curb managerial excess by imposing fixed obligations, thus aligning managerial interests with those of shareholders. However, excessive debt may also provoke adverse outcomes such as underinvestment or risk-taking detrimental to long-term shareholder value [9]. During crises, agency conflicts can intensify. Managers might prefer conservative financial strategies, limiting debt to protect their employment or operational stability, whereas shareholders may advocate for aggressive, debt-funded investments to capitalize on potential recovery opportunities. For instance, during the Dot-com crisis (2000–2002), some firms intentionally increased debt levels to mitigate managerial inefficiencies and enhance alignment with shareholder interests [8]. As a result, D/E ratios may move in opposing directions in times of crisis: cautious managers could decrease leverage to reduce risks, while activist shareholders might push for higher debt to exploit expansion opportunities at depressed asset prices [7].

Lastly, Market Timing Theory, advanced by Baker and Wurgler (2002), suggests that firms strategically select financing sources based on market conditions, issuing equity when stock valuations are high and preferring debt or share buybacks when valuations are low [2]. This opportunistic behavior implies that capital structures evolve in response to market conditions rather than adhering strictly to predefined targets. In crisis situations, declining equity markets typically discourage equity issuance due to significant dilution and associated costs. Concurrently, credit markets may tighten or even freeze, as observed during the European debt crisis (2010–2014), significantly restricting firms' financing options or forcing them to accept unfavorable borrowing terms [8]. Consequently, during financial turmoil, firms often delay funding decisions or opt for less optimal financing methods, further reflecting the dynamic and reactive nature of capital structure management. This environment also creates pronounced fluctuations in the D/E ratio, as companies might exploit temporary windows of opportunity to issue equity, despite depressed valuations, or incur additional debt when credit becomes momentarily accessible, leading to swift and sometimes unplanned changes in leverage [2].

The way non-material revaluations affect the D/E ratio can have significant consequences for credit ratings, borrowing costs, cross-border financial reporting, and investor perceptions [14].

Credit rating agencies and financial institutions rely on the D/E ratio as a measure of financial stability and risk [1]. If the ratio appears artificially low due to inflated equity values, lenders may offer more favorable loan terms and lower interest rates. However, if these revaluations are later reversed, the D/E ratio could increase unexpectedly, making the company appear riskier. This could lead to higher borrowing costs, restricted access to capital, or even a credit rating downgrade, impacting the company's ability to finance its operations efficiently [1].

Another major challenge arises from differences in accounting standards across countries. Multinational corporations operate in multiple jurisdictions where financial reporting rules vary. Under IFRS (International Financial Reporting Standards), companies are allowed to revalue assets, leading to potential increases in equity. In contrast, US GAAP (Generally Accepted Accounting Principles) is more conservative, restricting asset revaluations and requiring goodwill to be tested for impairment. These differences mean that an MNC may report different D/E ratios depending on the country where it operates, creating inconsistencies in financial assessments [14].

The financial markets also react to shifts in leverage perception. If investors assess an MNC based on a misleadingly low D/E ratio, they might view it as a safe investment when, in reality, its tangible asset base may not support its financial obligations. Conversely, if goodwill impairments or stock buybacks suddenly increase the D/E ratio, investors might perceive the company as riskier, even if its operational cash flows remain strong. This can lead to increased stock price volatility and potential declines in market valuation [13].

D/E — The Evidence

The debt-to-equity ratio data from 1961 to 2021 reveals several important patterns in corporate leverage over this sixty-year period [3].

During the early 1960s, debt-to-equity ratios remained relatively stable around 0.25, indicating conservative financial structures where companies maintained significantly more equity than debt [3]. This pattern changed dramatically during the 1973–1974 Oil Crisis, when the ratio peaked at approximately 0.58, representing the highest leverage point in the entire dataset [3]. This substantial increase likely reflected companies taking on additional debt to navigate the economic challenges caused by oil price shocks and the resulting economic instability. Following this peak, the debt-to-equity ratio declined but experienced notable fluctuations during subsequent economic disruptions [3].

The 1990s presented market confidence in future possibilities leading decrease in expensive crisis debt financing and series of IPO and share issuances [3]. The 1987 market crash, the early 2000s dot-com bubble burst and the 2008 Financial Crisis each triggered spikes in the debt-to-equity ratio, as companies may have increased borrowing to maintain operations during declining revenues or to take advantage of lower interest rates implemented as monetary policy responses to these crises [3]. Increasing debt, includ-

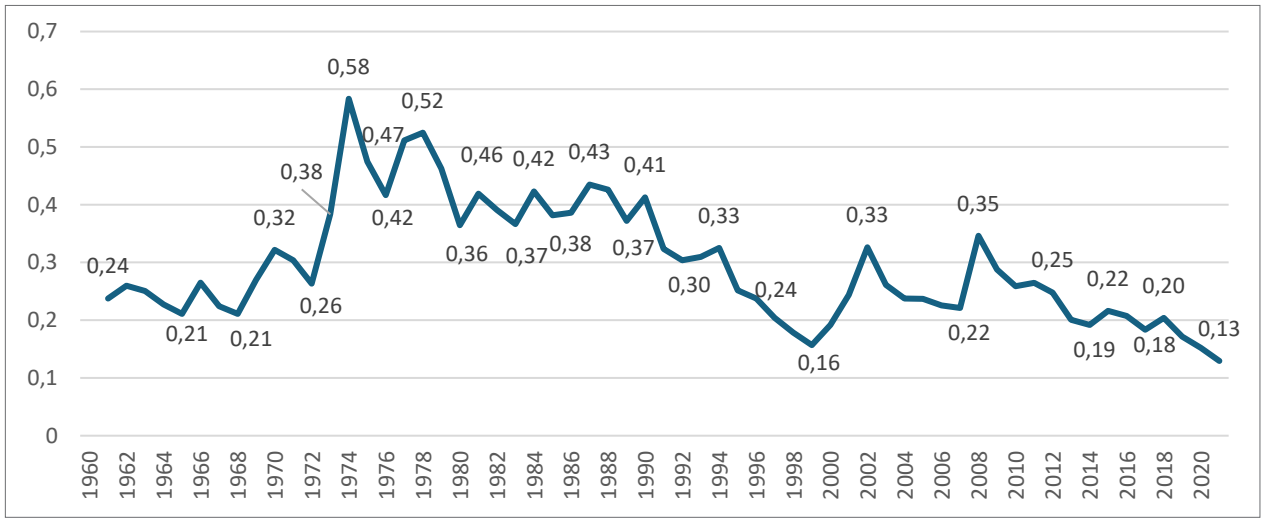

Fig. 1. Debt-to-equity ratio of US nonfinancial corporations
Source: compiled by the author based on [3]

ing through government support programs and direct investor negotiations, even overpriced seems reasonable market short liquidity and ability to negotiate individual terms in nonpublic offers [3].

The most striking trend emerges in the post-2008 period, where a clear and consistent deleveraging pattern took hold. From 2008 to 2021, the debt-to-equity ratio declined from approximately 0.35 to 0.13, reaching its lowest level in the entire dataset [3]. This significant reduction suggests a fundamental shift in corporate financial philosophy, with companies prioritizing stronger balance sheets and reduced financial risk following the harsh lessons of the Great Recession. The brief uptick during the COVID-19 pandemic was minor compared to previous crises and quickly resumed its downward trajectory [3].

This long-term trend toward lower leverage ratios may reflect several factors: increased awareness of financial risk, regulatory changes encouraging more conservative capital structures, different industry compositions in the modern economy, or changing investor preferences favoring companies with lower debt levels [14]. The data demonstrates that despite short-term increases during economic shocks, the overall secular trend has been toward lower corporate leverage, suggesting that businesses have become increasingly cautious about taking on debt relative to their equity positions [3].

The author proposes to compare the classical D/E ratio change with an incremental D/E ratio change that reflects only actual financial transactions involving real cash flow movements, excluding the effects of non-material revaluations [14]. This approach aims to provide a more accurate measure of leverage by isolating changes due to actual debt issuance, equity financing and stock buybacks rather than fluctuations caused by accounting adjustments. By distinguishing between these two perspectives, we can better assess markets's true change in financial health and risk exposure.

The comparative analysis of classical debt-to-equity (D/E) ratios and incremental D/E ratios provides valuable insight into how multinational corporations adjust their capital structures over time, particularly during periods of economic stress [14].

The data captures several notable crisis years (specifically 2007–2008, 2011, 2014–2015, and 2018) when global downturns influenced corporate financing decisions and exposed vulnerabilities in balance sheets [3]. By examining both the classical and incremental D/E measures during these intervals, it is possible to discern whether changes in leverage arose from genuine cash flow movements or from non-material revaluations that might distort the true risk profile [14].

From 2006 through 2008, the data reveals a dramatic shift in the classical D/E ratio, moving from a negative value in 2007 to a pronounced spike in 2008 [3]. This period corresponds closely with the global financial crisis, when equity values across many industries plummeted, and companies were forced to revalue assets [8]. The classical D/E measure was highly sensitive to these accounting-based losses and write-downs, causing large swings in reported leverage [14]. In contrast, the incremental D/E ratio during 2007–2008 showed less dramatic changes, reflecting that actual cash-based debt issuance or repayment did not fluctuate as sharply as the accounting revaluations might suggest [14].

The year 2011 is often associated with the European sovereign debt crisis, and the data reveal another interval of volatility [3]. Although the classical D/E ratio shifts in 2011, the incremental D/E measure indicates a continued negative balance but with relatively moderate changes compared to the classical ratio [14]. This discrepancy suggests that while market conditions led to shifts in reported equity values, the underlying cash flow transactions related to debt and equity did not experience equally severe disruptions [14].

In 2014–2015, many emerging markets and commodity-exporting countries faced significant challenges, including falling oil and commodity prices [3]. The classical D/E ratio during these years shows pronounced variations that could be linked to asset impairments or other accounting adjustments tied to lower commodity valuations [14]. The incremental D/E ratio, on the other hand, remains consistently negative but moves within a narrower range [14]. This steadiness implies that firms maintained relatively stable financing patterns in terms of actual debt and equity flows, even as they recorded impairments and write-downs on their balance sheets [14].

Another noteworthy crisis period is 2018, when global trade tensions and concerns about rising interest rates weighed on corporate financing decisions [3]. Again, the classical D/E ratio displays volatility that may be driven by non-material revaluations and shifts in equity, while the incremental measure reveals smaller year-to-year changes [14]. This pattern reinforces the notion that external shocks often manifest more acutely in classical D/E figures, which can be disproportionately affected by non-cash adjustments [14].

Throughout these crisis years, the consistent gap between the classical and incremental D/E ratios highlights the importance of examining both metrics [14]. The classical D/E ratio offers a snapshot of total reported debt relative to total reported equity, including all intangible revaluations, goodwill adjustments, and stock buybacks [14]. The incremental D/E ratio focuses on actual money flows, debt issuance, repayment, equity financing, and equity buybacks, thus providing a clearer picture of how financing decisions evolve in response to real economic conditions [14].

Conclusion and further perspectives. In conclusion, observing both classical and incremental D/E ratios during crisis years uncovers the extent to which accounting revaluations can inflate or deflate the perceived risk level of multinational corporations [14]. While classical D/E ratios can overstate or understate leverage in turbulent times due to large swings in asset and equity valuations, the incremental D/E ratio offers a more stable and transparent view of how companies adjust their capital structures when faced with economic stress [14]. This dual perspective allows investors, regulators, and corporate managers to develop a more accurate understanding of financial risk and to make better-informed decisions during and after periods of crisis [14].

Future research should investigate specific variations in the responsiveness of classical and incremental D/E ratios to economic shocks [2; 7]. Additionally, examining international differences influenced by varying accounting standards (such as IFRS vs. US GAAP) could yield important insights [14]. Further studies might also focus on incorporating qualitative factors, such as managerial behavior and investor sentiment, to enrich the understanding of capital structure adjustments during economic uncertainty [9; 11].

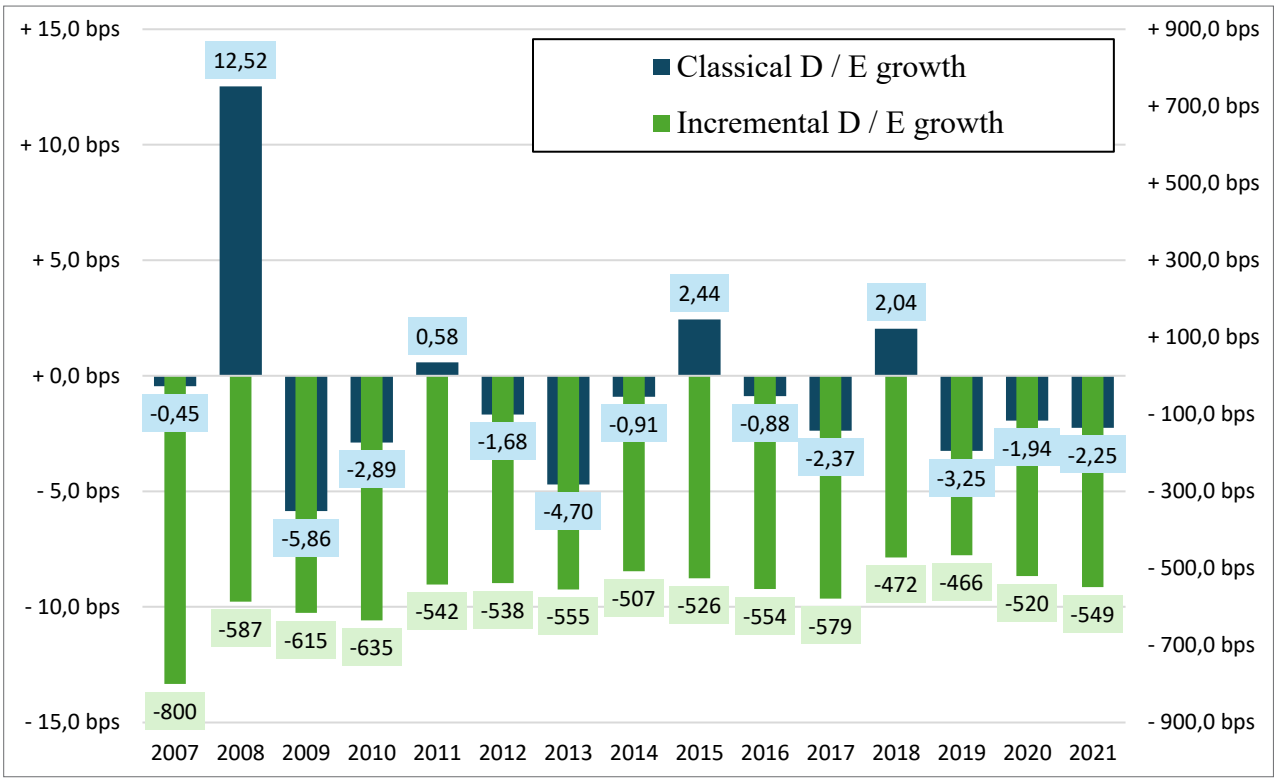

Fig. 2. Classical and incremental debt-to-equity ratio of US nonfinancial corporations change Y/Y

Source: compiled by the author based on [3]

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