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Abstract: Stability is essential for any firm because it signifies the robustness in financial structure. Financial stability of a firm cannot be assessed only by approaching the financial statements. Instead, incorporating risk management capabilities with financial statements can provide a clear picture of financial stability. While there are many studies in the literature exploring specified firm (banks, insurance, etc.) stability measuring conception of risk, only a few of them have examined the financial institutions as a whole. In addition, fewer studies have been found where firm stability has been measured by the relationship between firm's conception of risk and the accounting variables. In light of this need, the current study measures the impact of accounting variables and country level indicators on firm stability in 1,331 European firms covering the period 2010–2020. A negative relationship between the risk factors and the variables has been found, indicating firm stability.

Keywords: stability; firm; Europe; default risk; leverage risk; portfolio risk; ROA; financial variables; accounting variable; microeconomic variables.

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1 Introduction

Financial stability refers to a firm's financial situation, as well as its capacity to function and develop successfully while keeping a continuous balance of own and borrowed funds (Gennad'evna, 2019). Financial stability is essential because it signifies the robustness in financial structure. It is important to boost trust in the financial system and avoid financial distress because firms with higher financial stability are more economically resilient to financial stress (Zhang et al., 2020). In the unstable firms' adverse circumstances are more likely to cause significant financial stress and impede the flow of credit, resulting in severe financial hardship. In operation, financially stable firms possess the ability to settle creditors, pay overhead expenses and capital to investors. A firm seems financially stable when it ensures a smooth flow of funds in the economy to help it grow. Stable firms are often distinguished with growing profitability and high solvency and creditworthiness (Gennad'evna, 2019). It enhances the reputation of a firm – gives easier access to money, and provides them more influence in both the industrial and political spheres. When an economy is hit by adversity or a financial shock, firms with a

stable financial system can continue to meet their operational demands. In contrast, these identical shocks are likely to have far bigger consequences in an unstable firm.

The accounting variables of the firms can give a vivid demonstration of firms' current operation and its future developments. These indicators are used to evaluate a company's overall financial health and predict its capacity to remain as a viable financial institution. The financial statements are often interpreted to determine a firm's stability and risk taking behaviour (Saona and Azad, 2018; Saona and San Martin, 2016; Saona, 2011). Liquidity, solvency, profitability and operating efficiency are the four primary elements to measure the financial stability of a firm. However, a firm's financial stability cannot be determined solely by approaching at its financial statements. Instead, integrating risk management capabilities with financial statements can provide a clear picture of financial stability.

While there are many studies in the literature exploring specified firm (banks, insurance, etc.) stability measuring conception of risk (Danisman and Tarazi, 2020), only a few of them have examined the financial institutions as a whole. Studies show assessment of firm stability focusing on capital structure, return on asset (ROA) and firm size (Bilgin et al., 2021; Degl'Innocenti et al., 2020; Kasman et al., 2020; Mupunga and Ngundu, 2020). Literature also reveals default risk, leverage risk and portfolio risk as determinant of firm stability (Bilgin et al., 2021; Danisman and Tarazi, 2020). However, less studies have been found where firm stability has been measured by the relationship between firm's conception of risk and the accounting variables.

This paper contributes to the extant firm stability literature among default risk, leverage risk, portfolio risks and firm specific variables (ROA, equity to total asset, fixed to total asset, size) and a microeconomic variable (GDP per growth capita). A negative relationship between the risk factors and the variables has been found, indicating firm stability. Findings support the fact that reduction of risk in the firm can increase firms' stability and ensure continuum positive financial health. The findings will be helpful for the firm management and financial partners of the firm to take effective decisions for the firm in time.

The remaining part of the paper is divided into the following sections: the contextual setting of European countries is stated in the Section 2. The background and hypothesis development are described in Section 3, while data collection and technique are presented in Section 4. The results are then analysed in Section 5 and Section 6 draws conclusions and implication of the study.

2 Contextual setting

Firm stability tends to be influenced significantly at the country level specially in Europe, implying that regulatory impediments, cultural factors, and economic dynamics within each nation might all be factors to consider when analysing firm stability. In the decade of 2010 to 2020, the European integration has been undoubtedly the most difficult time thus far. The decade began with a looming Greek default in the spring of 2010, which swiftly spread across the Eurozone, resulting in a full-fledged sovereign debt crisis. Years of economic devastation followed the false dawn of 2010, as the financial crisis mutated into a currency crisis Figure 1 and the economic collapse of Europe's smaller, indebted economies, led by Greece and spreading Spain and Portugal. In the spring of 2020, the worldwide COVID-19 epidemic took a massive human toll and wreaked economic

havoc, bringing the decade to an end. Furthermore, the COVID-19 pandemic has brought significant stress in the balance sheet of many European firms causing huge loss.

Figure 1 Inflation growth rate from 2008–2021 (see online version for colours)

Note: EA – Euro area and EU – European Union.

Source: Eurostat

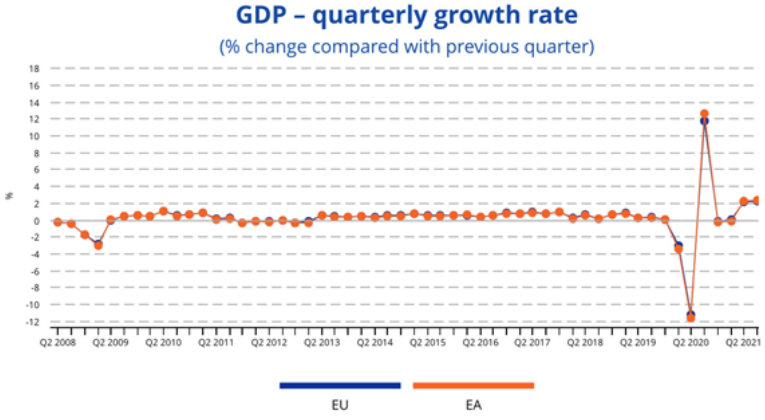
Following the global financial crisis, the EU conducted an extraordinary revision of its current financial services law, based on the worldwide agenda, and implemented its own changes to promote some long-standing aims, such as the single market's completion. Following the onset of the financial crisis, the commission offered more than 50 legislative and non-legislative solutions. The most major recommendations were made in the context of EU flagship programs like the banking union and the capital markets union. The post-crisis changes have resulted in a degree of centralisation, with many parts of financial services regulation and oversight being shifted from national to EU levels.

In the year of 2017, the economy of the European Union increased at its fastest rate in a decade. The growth rate of the European Union's GDP in 2017 was 2.80%, rising 0.79% from 2016. This progress was driven by Eurozone's four core nations which are Italy, France, Germany and Spain. In 2017, the EU's 28 member countries grew at their fastest rate since 2007, when they grew at a rate of 2.7%. The EU and the 19-nation Eurozone both increased by 0.6% in the final three months compared to the previous quarter. Germany, the EU's largest economy, expanded by 0.6% in the fourth quarter of 2017, reflecting this trend. France grew by 0.6%, while Spain grew by 0.7%. with this economic growth continent's economic powerhouses, Germany and France, saw growth levels not seen since the financial crisis' recovery in 2010. Overall, the Eurozone expanded by 2.5% in 2017, the strongest rate since 2007 when it increased by 3%. The growth rate of the European Union's GDP in 2018 was 2.11%, decreasing 0.69% from 2017. The growth rate of the European Union's GDP in 2019 was 1.55%, dropping 0.56% from 2018.

The coronavirus outbreak has thrown the European and global economies into major disarray. It has, however, had serious economic effects, which have been worsened by lockdowns that have largely paralysed European businesses and raised uncertainty. Other economic consequences are still being felt. The epidemic has resulted in the Europe's

worst economic decline since World War II. The GDP growth rate for the European Union in 2020 was –6.22%, dropping 7.77% from 2019 due to the COVID-19 pandemic. Asset values have continued to rise as a result of this scenario, despite periods of instability. Firms have declined in value, but company borrowing has increased, making businesses more exposed to future shocks. Banks incurred significant losses as a result of the pandemic, although they were well capitalised throughout; moreover, capital ratios have now returned to pre-pandemic levels. Because of the uncertainty of future sales and profitability, businesses have postponed or reduced investment. However, the COVID-19 shock demonstrated how non-bank financial firms' vulnerability to leverage and financing risk may magnify financial system shocks in times of crisis.

Figure 2 GDP growth rate from 2008-2021 (see online version for colours)



Note: EA – Euro area, EU – European Union.

Source: Eurostat

It is more difficult to distinguish stable firms from instable firms due to economic instability and ambiguity regarding the great recession or COVID-19 crisis's growth. When crisis assistance measures (such as moratoria on the necessity to file for bankruptcy proceedings) are repealed, preventative restructuring might help to protect viable firms in temporary trouble from being forced into premature liquidation. It would assist them in surviving till their incomes improve. Insolvency systems tend to become less efficient during times of crisis, therefore preventive restructuring is essential. To avoid viable firms in temporary trouble being driven into bankruptcy or zombie firms being established over time, it would be necessary to re-evaluate the sustainability of businesses on a regular basis.

3 Theoretical background and hypotheses development

A well-developed financial sector plays a vital role to a country's economic growth. From policyholders to shareholders, from business personnel to middlemen, and from regulatory agencies to potential investors, the financial performance of firms has direct repercussions for the general public. Insolvency in the sector has been a topic of debate and worry among the general public. Furthermore, identifying companies that may be in

danger of becoming instable has been a significant regulatory research goal. Studies that explore link between firm stability and accounting variables are scarce. A possible reason might be lack of time-series data. In fact, some authors have discovered variances in how well certain indicators are able to reflect actual levels of firm stability. While there are numerous studies in the literature that examine firms' stability indicators (Degl'Innocenti et al., 2020; Kasman et al., 2020), a few of them apply sufficient approaches of measuring firms' risk factors to determine its stability. Firms conception of risk has the potential to destabilise the financial system of it (Zhang et al., 2020). Abinzano et al. (2020), Bilgin et al. (2021), Danisman and Tarazi (2020), Wang and Reuer (2006) and Zhang et al.(2020) proposed a good amount of firm specific variables which are utilised in the studies to measure firm risk factors. According to Bilgin et al. (2021) and Danisman and Tarazi (2020) firms' default risk, leverage risk and portfolio risk are major determinants of firm stability.

3.1 Default risk

Altman (1968), Beaver (1966) and Beaver (1968) proposed most of the firm-specific variables used in the literature of default risk. Ben Bouheni and Hasnaoui (2017) also observed firm stability using default risk as an indicator. In these papers, it is shown that how firm's profitability and sustainability is related to its default risk. According to literature, most of the firm-specific variables and microeconomic factors are consistently linear with default risk and their impacts are consistent with the expected indications. For instance, ROA(Bilgin et al., 2021; Brahmana et al., 2020; Danisman and Tarazi, 2020), firm size (Bilgin et al., 2021; Brahmana et al., 2020; Danisman and Tarazi, 2020; Ullah et al., 2020; Zhang et al., 2020), asset turnover (Ullah et al., 2020), debt to equity (Ullah et al., 2020), sales growth (Ullah et al., 2020), loan, retained earnings (Castillo et al., 2018) are correlated with firms default risk.

Zhang et al. (2021) observed that ROA is significantly and negatively related to firms' default risk. It indicates that lesser default risk among the firms can assure high profitability. Céspedes et al. (2010), Elzahar and Hussainey (2012) and Zadeh and Eskandari (2012) found linear relationship between firm size and its default risk. In addition, George and Hwang (2009) claimed that The default risk premium inequity returns are determined by the size of the company. Default risk is reduced for more diversified and larger businesses (Frank and Goyal, 2009). Literature also suggest association between asset distribution and default risk of the firm(Castillo et al., 2018). Firms' equity also hold significant effect on default risk (Danisman and Tarazi, 2020; Saidane and Ben Abdallah, 2021). However, beside these studies default risk is also found to be significantly and negatively related to microeconomic conditions (Bilgin et al., 2021).

These discussions motivate the following hypothesis:

H1 The default risk can be explained by the accounting variables.

3.2 Leverage risk

It is an investment strategy to use leverage as a funding source while expanding a firm's asset base and generating returns on risk capital. The amount of debt a firm utilises to fund assets is often referred to as leverage. When a company is said to be highly

leveraged, it means it has more debt than equity. A firm that uses a lot of operating and financial leverage might be a risky investment. Excessive leverage in the financial sector raises the danger that financial institutions may be unable to withstand even minor losses if they are struck by negative shocks. In such circumstances, firms will be obliged to reduce lending, liquidate assets, or, in the worst-case scenario, shut operations. Firms might be severely hampered as a result of such reactions. High financial leverage causes huge risk when a firms' ROA does not surpass the interest on the loan. As a result firms' return on equity and profitability get seriously impacted. Bilgin et al. (2021) and Danisman and Tarazi (2020) investigated relationship between leverage risk and various firm-specific accounting variables (size, deposit share, growth). Danisman and Tarazi (2020) found significant association of leverage risk and firm size. As large firms have access to trustworthy and high-quality information, their leverage is positively correlated with their size, resulting in lower debt costs (Palacín-Sánchez et al., 2013). Bauer (2004) and Mashavave and Tsaurai (2015) observed that firms' leverage risk is unaffected by ROA. Besides these, microeconomic factor like inflation and GDP growth have been found having correlation with default risk by a handful of studies (Bilgin et al., 2021; Danisman and Tarazi, 2020).

These discussions motivate the following hypothesis:

H2 The leverage risk can be explained by the accounting variables.

3.3 Portfolio risk

A project portfolio is a set of projects that are handled in a coordinated manner in order to fulfil a firm's strategic goals. Risk, on the other hand, has an impact on portfolio success and reaching those goals. Portfolio risk refers to the possibility that the assets or units in the investments may fail to satisfy the financial goals. Each investment in a portfolio comes with its own set of risks, with a bigger potential return usually implying a higher level of risk. The entire risk of a portfolio of assets is reflected in the portfolio risk. It is the sum of the risks of all the investments in a portfolio. The weightings of the various components of a portfolio contribute to the amount to which the portfolio is exposed to certain risks. Market and other systemic risks are the most significant threats to a portfolio. To guarantee that a portfolio accomplishes its objectives, these risks must be handled. As a result, portfolio risk management may be extremely successful in aligning a portfolio with strategic goals. Portfolio risk management also increases organisational stability and reduces the chance of a project's risk spreading to other projects. There are a plentiful of studies that has examined credit portfolio risk (Hu and Szmerekovsky, 2017; McNamara, 2007; Smith et al., 1996). Chen et al. (2022) has used firm assets, volatility, debts, leverage ratio, ROAs and interest level to picture firm's portfolio risk. Firms that work to improve their portfolio management discipline are able to increase the stability of their businesses. Danisman and Tarazi (2020) used portfolio risk as a measure to assess bank stability and found correlation with accounting variables. Bilgin et al. (2021) analysed economic uncertainty and bank stability using portfolio risk as a major variable. It is found that as GDP growth increases firms tend to decrease their portfolio risk (Bilgin et al., 2021).

These discussions motivate the following hypothesis:

H3 The portfolio risk can be explained by the accounting variables.

4 Data collection and methodology

In the current study, cross-sectional and time series data were collected and analysed using panel data of eleven years. A balanced panel data of European economic sectors over the period 2010–2020 is used. This study is consisted of total 1,331 European firms. The data is collected from 22 European countries and 13 different kinds of financial institutions. The study is focused solely on the European countries because, unlike the rest of world, these nations must closely coordinate their economic and fiscal policies. The monetary and regulatory policies of these countries are interconnected as well which plays a vital role in the data panel. The name of countries and the corresponding firms in the data are displayed in Table 1. The collection of firms in each country is also represented in Table 1.

The aim of this study is to determine the firm stability factors from the accounting variables on European landscape. So, the variables for the study are selected after thorough review of literature in this field. To determine firm stability risk indicators like default risk, leverage risk and portfolio risk are chosen as dependent variables (Bilgin et al., 2021; Danisman and Tarazi, 2020). The variables are generated from available data as shown in Table 2. These variables are winsorised afterwards to minimise the influence of outliers. For independent variables ROA, equity to total asset, fixed to total asset and size have been used (Danisman, 2018; Kasman et al., 2020; Mupunga and Ngundu, 2020; Sinha and Sharma, 2016). These variables are also generated by using available data from the panel data. GDP per growth capita has been used as microeconomic variable (Danisman, 2018; Danisman and Tarazi, 2020; Sinha and Sharma, 2016). The source of country level this microeconomic data is World Bank data collection. The description of the variables used in the analysis are shown in Table 2 and the descriptive summary statistics of the variables is reported in Table 3.

In the study, two types of regression model has been examined. Initially panel correlated standard error (PCSE) regression is executed on three different models of default risk, leverage risk and portfolio risk. Next Hausman test was performed to select fixed effect regression for this study. Then fixed effect test was performed on each of the dependent variables separately to identify the significance of the independent variables. The following empirical models have been used for estimation:

$$\begin{aligned} \textit{Default Risk} = {} & \beta_0 + \beta_1 ROA + \beta_2 Size + \beta_3 \textit{Fixed Asset to Total Asset} \\ & + \beta_4 \textit{Equity to Total Asset} + \beta_5 \textit{GDPper Capita Growth} \end{aligned}$$

$$\begin{aligned} \textit{Leverage Risk} = {} & \beta_0 + \beta_1 ROA + \beta_2 Size + \beta_3 \textit{Fixed Asset to Total Asset} \\ & + \beta_4 \textit{Equity to Total Asset} + \beta_5 \textit{GDPper Capita Growth} \end{aligned}$$

$$\begin{aligned} \textit{Portfolio Risk} = {} & \beta_0 + \beta_1 ROA + \beta_2 Size + \beta_3 \textit{Fixed Asset to Total Asset} \\ & + \beta_4 \textit{Equity to Total Asset} + \beta_5 \textit{GDPper Capita Growth} \end{aligned}$$

5 Analysis

The heteroskedasticity and autocorrelations in data are reduced using generalised least square regression (GLS) as shown in Table 4. The results in model 1, model 2 and model 3 are estimated for the dependent variables-default risk, leverage risk and portfolio risk respectively. We know that the default risk, leverage risk and portfolio risk have inverse relationship with firm stability. Meaning that when risk decreases for any variable, firms tend to score more stability. So, a significant and negative coefficient for each variable refers to higher firm stability.

There are differences in the results for ROA on firm's default risk, leverage risk and portfolio risk. ROA is found statistically significant and negative in model 1 and model 3. While the coefficient of ROA is –1,308 for portfolio risk; it falls to –0.811 under default risk. The decrease in risk refers to high profitability for the firms which eventually secure firm stability. Similar results have been found by Brahmana et al. (2020) on his study on firm risk.. However, the leverage risk has no significant relation with ROA. This might be the result nonlinear relationship between firm profitability and leverage. Though previous research found mixed results on relationship between leverage and profitability, our results are in line with the findings of Mashavave and Tsaurai (2015).

The results in default risk (model 1) and portfolio risk (model 3) reveal that when the size of the firm increases, less amount of default risk and portfolio risk are observed among the firms. Literature also support positive association between firm size and risk disclosure (Céspedes et al., 2010; Elzahar and Hussainey, 2012; Zadeh and Eskandari, 2012). The negative and significant coefficient of about 5.2% of firm size reduces firms' default risk. Similarly, an increase of 1% of firm size reduces 6% of portfolio risk. The results indicate that smaller firms are more prone to face risks. As a result, small firms are more unstable than the bigger ones.

Equity to asset ratio is found having a significant and positive impact on firm stability. The positive relationship between these two variables indicates how equity to asset increases the ability of the firms to improve their financial stability. If the equity to asset ratio increases, firms generally face less risks. An increase of 1% in Equity to Asset ratio leads to a decrease of 175.9% in default risk and 27.4% in portfolio risk respectively.

In addition, results advocate that firms' stability influenced by not only firm level but also macroeconomic variables like GDP per capita growth. GDP per capita is a measure of a country's relative performance. A rise in per capita GDP indicates economic growth and usually reflects an improvement in productivity. Furthermore, GDP per capita is used to assess a country's workforce productivity, as it represents the entire output of goods and services for each member of the workforce in a certain country. Faster growth in GDP per Capita expands the overall size of the economy and strengthens fiscal conditions. Country's GDP per capita growth impacts negatively on firms' default risk. As GDP per Capita Growth increase by 1%, the default risk reduces by 2.8%. However, these variables do not show any significant relationship with leverage risk.

Further analysis has been performed on each of the dependent variables using fixed effect regression model.

Table 1 Tabulation of country of headquarters and industry

Country of headquarters	*GICSIndustry*													
	Banks	*Capital markets*	*Consumer finance*	*Diversified financial services*	*Equity real estate investment trusts (REITs)*	*IT services*	*Industrial conglomerates*	*Insurance*	*Machinery*	*Real estate management and development*	*Software*	*Thrifts and mortgage finance*	*Trading companies and distributors*	*Total*
Austria	33	0	0	0	0	0	0	22	0	33	0	0	0	88
Belgium	11	0	0	11	22	0	0	11	0	0	0	0	0	55
Bulgaria	22	0	0	33	22	0	11	0	22	0	0	0	0	110
Croatia	11	0	0	0	0	0	11	0	0	0	0	0	0	22
Czech Republic	22	0	0	0	0	0	0	0	0	0	0	0	0	22
Denmark	33	0	0	0	0	0	0	11	0	0	11	0	0	55
Finland	11	0	0	0	0	0	0	11	0	0	0	0	0	22
France	33	0	0	0	11	0	0	11	0	0	0	0	0	55
Germany	0	22	0	0	0	0	0	22	0	11	0	0	0	55
Hungary	11	0	0	0	0	0	0	11	0	33	0	11	11	77
Iceland	11	0	0	0	0	0	0	33	0	44	0	0	0	88
Italy	11	0	0	0	0	0	0	0	0	0	0	0	0	11
Netherlands	22	0	0	0	0	11	0	33	0	0	0	0	0	66
Norway	33	0	22	0	0	0	0	22	0	22	0	0	0	99
Portugal	11	0	0	0	0	0	0	0	0	0	0	0	0	11
Slovenia	11	0	0	0	0	0	0	33	0	0	0	0	0	44
Spain	66	0	0	0	22	0	0	11	0	0	0	0	0	99
Sweden	33	0	0	22	0	0	0	0	0	0	0	0	0	55
Switzerland	0	33	0	0	0	0	0	33	0	0	0	0	0	66
UK	55	66	0	0	33	0	0	77	0	0	0	0	0	231
Total	440	121	22	66	110	11	22	341	22	143	11	11	11	1,331

Source: Thomson Reuters

Table 2 Variable descriptions

Name of variables	*Description*	*Expected impact on risk (Expected sign)*	*Expected impact on stability (Expected sign)*	*References*	*Source*
		Dependent variables			
Default risk	Negative of the Z-score: (–1)*Ln [(ROA+ equity to assets ratio)/standard deviation of ROA]			(Bilgin et al., 2021; Danisman and Tarazi, 2020)	Thomson Reuters
Leverage risk	(–1)*Ln [equity to assets ratio/standard deviation of ROA]			(Bilgin et al., 2021; Danisman and Tarazi, 2020)	Thomson Reuters
Portfolio risk	(–1)*Ln [ROA/standard deviation of ROA]			(Bilgin et al., 2021; Danisman and Tarazi, 2020)	Thomson Reuters
		Independent variables			
ROA	Net income to total assets	–	+	(Danisman, 2018; Kasman et al., 2020)	Thomson Reuters
Equity to total asset	Shareholders equity to total assets	–	+	(Danisman, 2018; Sinha and Sharma, 2016)	Thomson Reuters
Fixed to total asset	The ratio of fixed assets to total assets	–	+	(Danisman, 2018)	Thomson Reuters
Size	The natural logarithm of total assets	–/+	–/+	(Danisman, 2018; Danisman and Tarazi, 2020; Kasman et al., 2020; Sinha and Sharma, 2016)	Thomson Reuters
		Macroeconomic variables			
GDP per capita growth	Annual percentage growth rate of GDP per capita	–/+	–/+	(Danisman, 2018; Danisman and Tarazi, 2020; Sinha and Sharma, 2016)	World Bank

Source: Thomson Reuters, World Bank

Table 3 Descriptive statistics

Variable	*Obs.*	*Mean*	*Median*	*Std. dev.*	*Min*	*Max*
Default risk w2	811	2,323	2,291	0.81	–0.249	4,998
Leverage risk w2	1,259	3,807	4,006	1,039	1,845	6,345
Portfolio risk w2	812	2,661	2,700	0.872	–0.21	4,542
ROA	984	0.965	0.361	6,128	–10,472	65,837
Fixed asset to total asset	449	0.746	0.892	0.305	0.002	0.994
Equity to asset	1,289	0.233	0.111	0.247	–0.105	0.997
Size	1,289	23,744	24,081	3,041	14,223	28,543
GDP per capita growth	1,353	0.696	1,051	2.86	–11.25	5.87

Notes: This table reports summary statistics for variables used in the paper. Individual variable definitions are outlined in Table 1.

Table 4 Regression reducing panel-corrected standard error (PCSE)

	(1)	*(2)*	*(3)*
	Default risk	*Leverage risk*	*Portfolio risk*
ROA	–0.812***	0.001	–1,306***
	(0.07)	(0)	(0.097)
Size	–0.052*	0.007	–0.06**
	(0.03)	(0)	(0.028)
Fixed asset to total asset	–0.143	–0.927	–0.056
	(0.103)	(0)	(0.063)
Equity to total asset	–1,761***	–3,099	–0.272**
	(0.149)	(0)	(0.133)
GDP per capita growth	–0.028**	–0.025	0.01
	(0.012)	(0)	(0.019)
_cons	5.08***	5,473	4,782***
	(0.765)	(0)	(0.695)
Observations	280	301	266
R-squared	0.968	0.987	0.96

Note: Standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

According to prior studies on the relationship between default risk and the independent variables with fixed effect regression Table 5, it is observed that all the variables have a significant and negative effect on default risk. This means as the ROA, fixed asset to total asset ratio, equity to asset ratio, size of the firm and GDP growth of the country rise; the firm acquire better stability. This conclusion might be explained by the fact that firms that can successfully manage their assets to produce more profitability are less likely to face threats, as ROA has a linear influence on default risk. It depicts the fact that firms with a higher ROA are better equipped to extract earnings from their assets, maintaining bank stability. On the other hand, as ETA has negatively significant effect on default risk it can be concluded that, firms with higher ETA have less risk get insolvent. Meaning that firms with more equity from their shareholders tend to survive more in the economy.

Similarly, bigger firms have more survival opportunity according to the findings as firm specific variable, size is negatively linear with firm's default risk. Finally, the linear relationship between GDP per capita and default risk reflects the fact that as GDP rate grows in European countries firms face lesser risks ensuring financial stability. This means greater GDP in European economy encourages firms to have sound operation. Overall, the results indicate that reduction of default risk can be highly beneficial for firms as it reinforces firm stability.

Table 5 Regression results using fixed effect (default risk)

DefaultRisk_w2	*Coef.*	*St. err.*	*t-value*	*p-value*	*[95% conf. interval]*		*Sig.*
ROA	–0.455	0.025	–18.33	0	–0.504	–0.406	***
Size	–0.264	0.035	–7.45	0	–0.333	–0.194	***
Fixed to total asset	–0.081	0.221	–0.37	0.714	–0.516	0.354	
Equity to total asset	–1,989	0.168	–11.83	0	–2.32	–1,657	***
GDP per capita growth	–0.043	0.012	–3.43	0.001	–0.067	–0.018	***
Constant	8,881	0.771	11.52	0	7,362	10.4	***
Mean dependent var.		1,858	SD dependent var.			0.706	
R-squared		0.678	Number of obs.			292	
F-test		85,032	Prob. > F			0.000	
Akaike crit. (AIC)		–11,748	Bayesian crit. (BIC)			13,990	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 6 Regression results using fixed effect (leverage risk)

LeverageRisk_w2	*Coef.*	*St. err.*	*t-value*	*p-value*	*[95% conf. interval]*		*Sig.*
ROA	0	0.001	0.11	0.912	–0.003	0.003	
Size	–0.053	0.023	–2.36	0.019	–0.098	–0.009	**
Fixed to total asset	–0.305	0.141	–2.17	0.031	–0.582	–0.028	**
Equity to total asset	–2,711	0.11	–24.70	0	–2,927	–2,495	***
GDP per capita growth	–0.015	0.007	–2.19	0.03	–0.028	–0.001	**
Constant	5,409	0.487	11.11	0	4.45	6,367	***
Mean dependent var.		2,744	SD dependent var.			0.778	
R-squared		0.709	Number of obs.			313	
F-test		106,969	Prob. > F			0.000	
Akaike crit. (AIC)		–296,879	Bayesian crit. (BIC)			–270,656	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

The results from fixed effect analysis with leverage risk Table 6 offer a different conclusion than Table 4. It indicates that most of the explanatory variables show statistically significant coefficients and are able to explain firm stability. These variables

include size, fixed to total asset, equity to total asset and GDP growth. However, it is found that ROA do not affect the leverage risk of firms which supports the findings of Bauer (2004) and Mashavave and Tsaurai (2015).

For the model Table 7 based on portfolio risk, the results support linear relationship of ROA, size, equity to total asset and GDP per growth capita with portfolio risk. This suggests positive relationship between firm stability and the variables. So, it can be concluded that bigger firms have more portfolio value and less likely to face portfolio risk. Firms with higher profitability and ETA is also prone to lesser instability. As for fixed to total asset ratio, it has no significant influence on portfolio risk. So, the findings recommend that big firms with higher ROA, ETA and a high GDP growth in the corresponding country can ensure stability. Greater delivery performance and portfolio value may be achieved by measuring portfolio risk and proactively controlling it.

Table 7 Regression results using fixed effect (portfolio risk)

PortfolioRisk_w2	*Coef.*	*St. err.*	*t-value*	*p-value*	*[95% conf. interval]*		*Sig.*
ROA	–0.566	0.041	–13.69	0	–0.647	–0.484	***
Size	–0.312	0.058	–5.39	0	–0.426	–0.198	***
Fixed to total asset	–0.375	0.362	–1.04	0.301	–1,087	0.338	
Equity to total asset	–1,085	0.276	–3.93	0	–1,629	–0.541	***
GDP per capita growth	–0.05	0.021	–2.43	0.016	–0.091	–0.009	**
Constant	10,428	1,261	8.27	0	7,943	12,914	***
Mean dependent var.		2,504		SD dependent var.		0.881	
R-squared		0.522		Number of obs.		275	
F-test		40,871		Prob. > F		0.000	
Akaike crit. (AIC)		248,596		Bayesian crit. (BIC)		273,913	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

6 Conclusions and implications

This study aim to highlight the relationship between firms' risk with their financial information in order to measure stability. This paper contributes to the important debate of regulatory body and academics regarding the determinants of firm stability. Here annual data from 1,331 European firms were used to employ panel data regression analysis for the years 2010–2020. The data reflects the characteristics of major European economies from the time period of the late global financial crisis to early worldwide COVID-19 pandemic situation. The data from UK has a major influence in the study because most of data are from the pre-Brexit situation. As a result, the analysis pictures the stability mechanisms of European firms in different economic shocking situations. As the study contains the dataset of a full decade the results could capture the various trends of European economy as well. The study gives an idea of business viability in the European zone and thus contributes to the literature. The study explores the link between firms' stability and its possibility of facing risks and whether there is any nonlinearity in

this relationship considering various accounting variables. It is then investigated how ROA, size of the firm, fixed to total asset ratio, equity to total asset ratio and GDP per capita growth influence smooth functioning of the firm and possibility to achieve success. All these variables are found to be linear to firms' concept of risk. Thus, it creates a scenario for the policy makers to focus on which accounting variables to avoid risk among firms and to ensure viability.

The key practical implication the findings is that it offers better decision-making ability to the regulatory authorities, policy makers, supervisory authorities, users of financial information, companies and analysts. It also gives them a prior concept of firms' finance's strengths and weakness. Results will aid decide making about firms' size, ROA, asset and equity distribution. High profitability can lead to a financially stable environment in the firms. Therefore, they need to be monitored carefully. In addition, size plays a vital role in securing firms' stability. According to the study, bigger firms are resilient to face risks. Authorities can focus on enlarging their firms to secure stability. Furthermore, findings suggest that firm has to strategise their assets and equity in order to have stability. Finally, the study also provides idea to the decision makers to take GDP per capita growth of the country on account to take suitable decisions. It helps them frame their strategies in terms of potential consequences of the real economy. Overall, the findings emphasise on the financial information of the firm and macroeconomic variable to assess its continuum health.

This study contributes to the literature in many ways. First it showcases how government reliability works as a fundamental variable for firm survival. The study provides a thorough analysis of the varied effects of the recent global financial crisis and large production losses observed in several European countries on firm stability. As these incidents have a significant impact on the economy, it is very important for the firms to have a proper knowledge of these trends that are helpful for firms to survive. Secondly, the paper presents a reliable picture of firm stability indicators as it has gathered a wide range of data from 22 European countries and 13 different kinds of financial institutions. the findings are also useful for scientific purposes in a sense because the data represents recent information of the period 2010 to 2020. The third contribution of this study is that it adds to the current body of knowledge, which focuses on the impact of accounting variables on firm stability. The study considers firms' overall risk-taking behaviour as an indicator of financial stability at the firm level.

However, the study is limited to only few accounting variables of European firms. Therefore, firms' management should not only focus on profitability, its size, asset and equity distribution process but also other accounting variables related to its capital structure in order to assess stability. Future research arenas might possibly aim to solve some of the existing method's drawbacks. This study's analysis can be expanded in several aspects. The following two approaches are intended to broaden the scope of the research presented in this paper. Firstly, future research could explore the role of management in securing firm stability. Secondly further research can be done examining the impact of receivables on firm stability. The impact of various macroeconomic and regulatory variables on firms could be investigated.

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