IS FINANCIAL RISK A BARRIER TO THE IMPLEMENTATION OF SDGS IN LOCAL GOVERNMENTS? AN ANALYSIS FOR SPANISH MUNICIPALITIES

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Abstract

Local entities have a fundamental role in sustainable development and must design policies and strategies to achieve the Sustainable Development Goals (SDGs). This paper analyzes the possible impact of the financial condition on the achievement of the SDGs in Spanish local entities, developing a financial risk indicator for each government. The paper takes into account both the static and dynamic situation, that is the level for each government in two different years in the implementation of SDGs and the evolution between the two years, aiming at verifying whether the evolution of the financial condition goes hand in hand with the degree of implementation of the SDGs. In order to test it, univariate and multivariate analysis are carried to analyze the effect of the dimensions of the financial condition and of the financial condition itself on the level of implementation of the SDGs.

Keywords : Financial sustainability; Sustainable development; SDGs; Local entities; Financial risk

1 Introduction

The financial crisis, climate change and, more recently, the COVID 19 pandemic, have further highlighted the importance of contributing to society not only in economic but also in social and environmental terms (Bowen, 2017; Cohen, 2021). There is a general concern in the society for social and environmental aspects and for sustainable development, in a global perspective. Both companies and administrations develop strategies that contribute to sustainable development. The 17 Sustainable Development Goals (SDG) contained in the 2030 Agenda approved by the United Nations in 2015 have become a world reference, both for companies and institutions and for citizens themselves. Local administrations have a fundamental role in achieving the aforementioned SDGs, given that they have competencies related to all of them and therefore their strategies and policies should take this global challenge into account. The initiatives and experiences developed, both nationally and internationally, are quite varied, but they confirm the degree of awareness that exists at the local level (Raffer et al., 2021).

One of the lines of action that is being developed is precisely the alignment of the budget with the SDGs, with various proposals aimed in this direction (UNDP, 2022)). The main problem facing the measurement of compliance with the SDGs is precisely the weakness or insufficiency of the information systems, which sometimes do not have sufficient information to monitor and allow obtaining the contribution of the entity in the creation of value to sustainable development (Abhayawansa et al., 2021; Cohen et al., 2023). The use of new technologies and the extension of accounting and financial information systems to other information that is not strictly financial should facilitate the development of integrated information systems that allow all the necessary information to be provided. In this context, Babbington and Unerman (2020) highlight the importance of involving accounting research in the study of the implementation of the SDGs in practice.

In the literature there is a stream of research that try to analyze what factors can influence the achievement and scope of the SDGs implementation (Martínez-Córdoba et al., 2020; Mutiarani and Siswantoro, 2020; Bisogno et al., 2023), the disclosure of information related to them (Guerrero et al., 2021) or the relationship between efficiency in the provision of public services and the SDGs (Río et al., 2022). However, to date, there is still no research that considers the incidence of financial risk from a dynamic perspective and that tries to analyze whether there is

a correspondence between the evolution of the financial condition and the achievements in the SDGs sphere. To achieve the SDGs, investment and spending policies are needed and financial risk can have impact on their achievement, because of which it is important to know to what extent the financial condition and its different dimensions influence the level of sustainable development achieved by the municipalities, measured by the SDGs.

Taking into account this gap identified in the literature, this paper aims to analyze the impact of the financial condition on the achievement of the SDGs, and in particular, if more risky financial policies can be a barrier to achieving SDGs or, on the contrary, have a positive influence and allow progress in sustainable development. Furthermore, considering that political factors can also influence the policies developed in the entity and thereby influence the level of implementation of the SDGs, the work also considers the incidence of political factors.

In summary, the study tries to answer the following research question: Do the financial condition and political factors of a local entity influence the achievement of the SDGs? The analysis is carried out both from a static and dynamic perspective, that is, also analyzing the variations in both aspects between different periods. The study focuses on the largest municipalities and specifically in the 100 municipalities for which the sustainable development assessment is carried out by the Spanish Sustainable Development Network (2020 and 2022), although for some of them financial information was no available, so the number of municipalities included is finally 81.

This paper is structured in 5 sections. After this introduction, the following section carries out a review of the literature and details the research questions within this framework. The third section presents the methodology and design of the research, explaining the variables used and their sources of information, as well as the statistical procedure used in the analysis. Next, in the fourth section, the results are presented. The last section contains the discussion of the results and summarizes the main conclusions of the paper and its implications, as well as the limitations of the study.

2 Literature review

Local entities have a fundamental role in achieving the SDGs, given that they have competencies related to all of them, which requires designing strategies and policies that allow them to contribute to achieving them and therefore to sustainable development (Raffer et al., 2021). The implementation requires that the SDGs be integrated into municipal management (Krantz and Gustafsson, 2021) and with this objective, some entities prepare a budget aligned with the SDGs. In fact, Oprea et al. (2022) found that local budgets positively influence regional development.

In the literature, several papers show the importance of aligning the strategic objectives of local entities with the SDGs and analyze the situation in different contexts (Zeemering, 2018; Krantz and Gustafsson, 2021; Raffer et al., 2021) and how entities report about SDGs online (Nicolò et al., 2023). For example, Guarini et a.l (2021) study the integration of the SDGs in the strategic objectives of Italian capitals, noting that it is scarcely widespread and that only a few cities have connected the SDGs with the strategic objectives, with actions and indicators to measure. In addition, they show that larger cities are more likely to incorporate the SDGs into their strategic plan, making use of indicators. Krantz and Gustafsson (2021) explore how SDG has been integrated in management in a Swedish municipal organization, leading to an integrated approach to sustainability. The authors pointed out that the challenge is operationalizing the SDGs into management systems, budgets and motivating employees across organizational silos and levels.

This practice of integrating SDGs with a holistic perspective in public financial management system is still scarce and only some forerunner cases have been described in the literature (Krantz and Gustafsson, 2021). This can be in fact one of the factors which makes that SDGs efforts do not have enough results. In this sense, Rios et al. (2022) analyze the effect of SDG achievements on municipal efficiency, noting that only efforts in SDGs 2 and 5 affect efficiency levels, in the first positively and in the second negatively. Lauwo et al. (2022) argue that the lack of reporting systems and accountability for results has limited the implementation of the SDGs in Tanzania.

Another issue pointed out in the literature is the need to develop standards and normalized models to measure the achievements of the SDGs (Cohen, 2021), which would make it possible to respond to the demand for accountability from the perspective of social and environmental aspects (Manes Rossi et al., 2020), and therefore the need to disseminate information on SDGs, based for example on a system of indicators. Guerrero-Gomez et al. (2021) analyze the disclosure of information about SDGs in some municipalities in Latin America and point out that the size of the population, educational level, unemployment, and political corruption influence transparency related to the SDGs. Nicolò et al. (2023) compare the disclosure of Spanish and Italina local governments about SDGs on the web and conlude that they have developed strategies but the level of disclosure is still low, and Rieiro-Garcia et al. (2023) found that municipalities led by women mayors tend to disclose more sustainability information through their websites,

There is a specific line of research that studies the possible factors and characteristics that affect the achievements and implementation of the SDGs (Mutiarani and Siswantoro, 2020). Within this line of research, although still incipient, there are already some works that consider the possible relationship between the financial condition and the level of implementation of the SDGs, as well as the incidence of political factors in the municipality.

Impact of financial condition and political factors on the implementation of SDGs in local governments

The development of strategies and policies aimed at implementing the SDGs requires financial resources (Orzeszyna and Tabaszewski, 2021), both for current activities and investment, which can make effective the achievements in sustainable development and therefore financial management and potential financial risks can have a significant impact directly in sustainable development of the municipality. In fact, some SDG indicators are measured in financial terms to analyze the resources allocated to specific policies, such as unemployment or social policies. In each municipality, its inhabitants are constantly demanding public services which is affected by cultural factors, by their levels of income or wealth and by differences in their needs, determined by the age structure or other personal characteristics of the population, developed economic activities, etc. Therefore, these characteristics of the environment, which affect the financial situation, can also be expected to influence the implementation of the SDGs.

In short, entities receive and manage financial resources to meet the demand of their citizens, and with this they should contribute to achieving the SDGs, but it is important to know which policies have the best effects. For example, Mutiarani and Siswantoro (2020) argue that those entities with higher investments in capital expenditures will have better results in achieving the SDGs.

In this line, Gutiérrez Ponce et al. (2018) analyze the main factors that explain the relationships between budgetary sustainability and sustainability of welfare policies, understanding that the latter represents the Corporate Social Responsibility (CSR) of each

municipality. Their results indicate that the CSR of the municipalities can be explained by the size of their population and how they are financed.

Bisogno et al. (2023) analyze the factors that affect the level of implementation of the SDGs in Spanish and Italian municipalities and conclude that good financial condition is essential for the achievement of the SDGs, especially those related to People and Prosperity, involving essential services in local entities. However, capital expenditures play a limited role. Regarding political factors, although ideology is not statistically significant, coalition governments do show some significant differences in the achievement of the SDGs, although the results are different depending on the areas analyzed. Their results are not conclusive and the authors highlight the need for more research in this area.

With a slightly different perspective, but also focused on the relationship between the SDGs and financial management, Benito et al. (2023) analyze the effect that the implementation of SDGs has on the financial situation. The authors conclude that the municipalities with better achievements in SDGs have lower average payment period to suppliers and lower financial surpluses (or even higher deficits). However, the level of achievement in the SDGs does not affect the level of municipal debt per capita.

Regarding political factors, Martínez Córdoba et al. (2020) analyze the contribution of 58 Spanish municipalities to achieve SDG 11, and possible differences between them motivated by different political ideologies. The results show differences in the dimensions used in progressive and conservative governments. While progressive governments prefer policies aimed at citizen participation, public roads, urbanization, green spaces, passengers, transfers and effective cost, conservative governments stand out in their commitment to the objectives of adequate housing, urban security, urban cleanliness, air pollution and Waste Management. On the other hand, their results confirm the existence of greater intergovernmental collaboration between those governments with the same ideology and, consequently, implementing similar policies, taking into account that they pursue the same political objectives. In other words, if local and regional governments have the same ideology, synergies between them are easier to achieve the SDGs.

Having grater knowledge about the impact of the financial situation is essential to supporting local governments in making decisions and assessing different alternatives, thus increasing the chances of contributing to achieving the SDGs. Through the proper management of the financial resources of the entity, monitoring financial risks and with the main objective of creating value, local entities can contribute more efficiently to achieve the objectives of the 2030 agenda, which should engage stakeholders toward sustainable development attitudes.

In addition, taking into account the proximity of the entities to the citizens, it has been suggested that local governments will direct more effort to policies related to people and prosperity (Bisogno et al., 2023). For this reason, we specifically analyze the effect in these two areas, which respectively include SDGs 1 to 6 (people) and SDGs 7 to 12 (prosperity). The paper aims to answer the following research question (RQ): Does the financial condition of a municipality and political factors affect the achievement of the SDGs? This general question is analyzed from three perspectives:

RQ 1 – Do the financial condition and political factors influence the level of implementation of SDGs in local government?

RQ 2 – Do the financial condition and political factors influence the level of implementation of people and prosperity areas of sustainable development?

RQ 3- Do the modification in financial risk and the change in the political party of the government affect modifications in achievements in SDG, from global, people and prosperity perspective?

3   Research Design

One of the problems observed when analyzing the level of implementation of the SDGs at the local level is precisely the lack of information about it. In this sense, it can be highlighted the initiative carried out by the Spanish Network for Sustainable Development (2020), which has developed 106 indicators to evaluate the progress of Spanish municipalities in the implementation of the SDGs, applying this methodology to the evaluation of 100 municipalities.

We use this evaluation on the implementation of the SDGs to build our database, so the selection of the sample is conditioned by the availability of data. The sample is made up of the 100 municipalities for which the Spanish Sustainable Development Network (2020 and 2022) publishes the evaluation.

The assessment of the financial condition of the municipalities has been done using the financial and budgetary information available in public database, fundamentally available on web pages (Ministry of Finance and Public Function, 2022b). However, we were not able to find the financial information of the 100 municipalities, so the final sample selected consist of 81 municipalities. Regarding the year for which the budget information is used, it corresponds to the financial years 2018 and 2020.

SDG Implementation Indicator, People and Prosperity areas

Based on the data published for the years 2018 and 2020 by the Spanish Network for Sustainable Development (www.sdgindex.org), the global implementation of the SDGs (SDG 1 to SDG 17) is calculated for each municipality and for the two years of study (2018 and 2020). The value of People (SDG 1 to SDG 6) and Prosperity (SDG 7 to SDG 12) are also specifically calculated.

To assess the level of implementation of each municipality, it is necessary to use a methodology that allows converting the graphical representation based on colors into a numerical variable that can be used in statistical analysis. Thus, following Bisogno et al. (2023), an implementation level is assigned to each color (low, medium low, medium high and high) (Sánchez de Madariaga et al., 2020; Sánchez de Madariaga et al., 2018), and subsequently a value of 1 to 4 for the level of implementation in each SDG, with 1 being low levels of implementation and 4 being high levels of implementation. Using this methodology, the value of the SDG Implementation Indicator (SDG) ranges from 17 to 68; *People* area ranges from 6 to 24 and *Prosperity* area ranges from 6 to 24.

These three indicators are used as dependent variables in order to answer RQ1 and RQ2. In relation to the research question focused on the effect of variations in financial risk, the change in the level of implementation is calculated for the SDG Indicator (v_SDG) and for each of the two areas (v_people and v_prosperity), Therefore, in this section the difference between the level of implementation of the year 2020 and the level of implementation of the year 2018 is used as dependent variable. Consequently, positive variations in implementation indicate that the level of achievement increases in 2020 compared to 2018.

Financial Risk Indicator and its dimensions

In order to assess the financial risk of each municipality, we follow the methodology proposed by Zafra-Gómez et al. (2009a) with the objective of calculating a Financial Condition Indicator (FCI) that informs about the local financial risk, that is the indicator will reflect potential financial problems. The indicator is composed by three dimensions (Table 1): liquidity (L), budgetary solvency (SOLVP) [made up of flexibility (F), independence (I) and sustainability (S)], and solvency of public services (SP).

Each of these dimensions is calculated using the indicators more relevant in accordance with the literature that analyzes the financial condition of the municipalities (García-Sánchez et al., 2012; Zafra-Gómez et al., 2009a; 2009b). Following Zafra et al. (2009a), after obtaining the indicators, the municipalities are ordered and we assign a value depending of the quartile where the municipality is, differentiating four potential assessments for each indicator (Table 2).

For example, in the first indicator, those municipalities that have the highest cash surplus will be located in the fourth quartile, therefore, they will be the ones that present the best indicator in comparative terms and therefore this group of municipalities in the fourth quartile would be valued with the lowest score (lower valuation score means less financial risk).

Table 1 – Financial and Budgetary Indicators

Dimensions			Indicator	Definition
LIQUIDITY (L)			Cash surplus	Cash + Short-term Receivables – Short-term liabilities
			Average payment period	Average number of days that the municipality takes to pay to suppliers
BUDGETARY SOLVENCY (SOLVP)	*Flexibility (F)*		Financial Surplus per capita	(Current Revenues – Current expenses- debt repayment) / Population
			Financial pressure	(Financial expenses+debt repayment) /Population
	Independence (I)		Current Independence	Current expenses/(Current revenues–current transfers)
			Financial Independence	Total expenditures / (total revenues – total transfers)
			Fiscal revenues index	Taxes and Fees /Current revenues
	Sustainability (S)		Non Financial Result	Non financial expenses / Non financial revenues
			Current Result	Current revenues / current expenditures
			Sustainability in Public Services	Expenses in basic public services / Current revenues
SOLVENCY IN PUBLIC SERVICES (SP)			Current expense per capita	Total Current expenses/Population
			Capital expenditure per capita	Total capital expenditures / Population

Table 2 – Assignment of scores to obtain the Financial Condition Indicator

Values of the variables and ratios	Score Assigned
If the municipality presents an indicator that is among the 25% of the lowest values (below the 25th percentile)	1 point
If the value is between 25% and 50% (between the 25th and 50th percentile)	0.5 points
If the value is between 50% and 75% (between the 50th and 75th percentile)	0.25 points
If the value is above 75% (above the 75th percentile)	0 points

However, it must be clarified that there are a series of ratios that present a negative relationship with the financial condition and therefore the valuation of Table 2 is inverted, which means that in these cases the indicators that are located in the lowest quartile present better financial situation and will receive 0 points. In this sense, the score given to the variables and ratios has varied for each group of indicators:

- Indicators in which a higher value is equivalent to a worse financial situation → Average payment period, financial pressure pc, current independence index, financial independence index, non-financial result index, current expense pc and capital expenditure pc. In this case, the first quartile values are assigned with 0, and so on.

- Indicators in which a higher value is equivalent to a better financial situation → Cash surplus, Financial Surplus per capita, fiscal revenue index and current result index. In this case, those in the first quartile are valued with 1, and so on.

Regarding the third research question of the paper, it should be added that, as occurs with the variation in the SDG level, it is also calculated the variation in the financial risk and in each dimension of the financial condition. It is obtained considering the financial condition indicator in 2020 minus the financial condition in 2018, so if there is a positive variation, the financial risk of the municipality in question will have increased, these variations are expressed as follows: v_L; v_SOLVP and v_SP

The indicators have been obtained using the accounting and budgetary information corresponding to each of the municipalities available in the Ministry of Finance and Public Function (2022a).

Political Factors

Political variables are introduced in the study to evidence whether political factors affect the level of implementation of the SDGs or in the two areas considered (Table 3).

The variables have been obtained with the electoral data published by the Ministry of the Interior (2019) and the Ministry of Territorial Policy (2023) as shown in Table 3.

Table 3 – Political variables

Variable	Definition
Ideology of the mayor (*ideolog*)	Dummy variable that takes the value 0 if the mayor belongs to a conservative party and takes the value 1 otherwise
Absolute majority government (*may_gob*)	Dummy variable that takes the value 0 if the government is in the minority and value 1 if there is an absolute majority
Gender of the mayor (*gen_alc*)	Dummy variable that takes the value 0 if the mayor is male and takes the value 1 if the mayor is female.
Change in the political party (*change_party*)	Dummy variable that takes the value 0 if there was not change of political party in the local government in the 2019 elections

Methodology

Once the Financial Condition Indicator and all of their dimensions have been calculated, firstly, a Pearson correlation analysis is carried out to check if there is a significant relationship between the FIC and the dimensions of the financial condition and the level of implementation of SDGs. This will allow us to give a partial answer to the first two research questions.

Secondly, for each of the questions asked, different linear regression models are carried out, using a static data panel that omits the differences in space and time (pooled model) using the least squares (OLS) estimate. In this case, robust estimators (Sandwich estimator) are used. The general definition of the equation of the model is as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + e_{it}$$

Where: α would is the constant of the model, Xit represents the matrix of regressors, $\beta1$ the matrix of coefficients, e_{it} the residuals, i denotes the different municipalities and t is the year.

4 Analysis of Results

4.1. Influence of the financial condition and political factors on the level of implementation of the SDGs

The results of the Pearson Correlation coefficient (Appendix I) show the causal relationship of all the dimensions and sub-dimensions of the financial condition with respect to the level of total implementation of the SDGs. In particular, the results obtained show that liquidity (L) and the sub-dimension of independence (I) are the only areas in which there is a negative relationship, which indicates that a lower liquidity risk and having more financial autonomy favor the achievements of the SDGs. On the contrary, both the dimension of budgetary solvency (SOLVP), as well as the dimension of solvency of public services (SP), and the total index of financial condition (FCI) have a positive relationship, that taking into account that they are risk indicators, it means that presenting more financial risk in these areas can incentivize the achievement of the SDGs.

As Pearson Correlation coefficients evidence that there is correlation between the SOLVP and each of its subdimensions (F, I and S) and also between the FCI itself and SOLVP, in order to avoid multicollinearity, we have run different linear regression models that take these restrictions into account (Table 4). In this respect, we have tested through the VIF test the high degree of tolerance of the independent variables introduced in the models, so there are no collinearity problems and through the Breusch-Pagan test the null hypothesis of homoscedasticity so that heteroskedasticity is avoided.

The results obtained in Table 4 allows to evidence that, from a global perspective, there is more statistically significant relationship between the financial condition and its different dimensions and the level of implementation of the SDGs than with political factors. Model 1 and Model 2 show that the three dimensions of the financial condition influence the level of implementation of the SDGs. In this regard, a better liquidity position (or lower risk) favorably influences the achievement of the SDGs, while having more risk of budgetary solvency and more risk in the dimension of solvency of public services, derived mainly from carrying out higher levels of expenditures, implies improvements in the implementation of the SDGs. Similarly, in Model 3 and Model 4 it is tested that higher levels of financial risk favor the achievement of the SDGs.

With respect to the sub-dimensions of budgetary solvency, it is obtained that, unlike what happens with flexibility, which is not statistically significant, independence and sustainability have a statistically significant impact in the implementation of the SDGs, although the sign of

the two variables is opposite, which indicates that the municipalities that have more financial autonomy can face the implementation of the SDGs in a better position, unlike what happens in sustainability, evidencing that having better positions in the results does not imply greater implementation.

The results also evidence that regarding the political variables, the only variable that is relevant in two of the models is whether the management of the municipal government is or not majority, evidencing better results for minority or in a coalition governments (Model 4 and Model 6).

Table 4 –Impact of Financial Condition and Political Factors in the level of implementation of SDGs

	Model 1 SDGs	Model 2 SDGs	Model 3 SDGs	Model 4 SDGs	Model 5 SDGs	Model 6 SDGs	Model 7 SDGs
L	-1.080**	-1.033**			-1.108**	-1.195**	-0.998**
	(0.474)	(0.489)			(0.495)	(0.486)	(0.479)
SOLVP	0.592**	0.473*					
	(0.248)	(0.267)					
SP	1.429***	1.393***			1.493***	1.224**	1.087**
	(0.473)	(0.495)			(0.486)	(0.483)	(0.495)
ideolog		0.313		0.196	0.258	0.106	0.279
		(0.573)		(0.598)	(0.571)	(0.542)	(0.555)
may_gob		-1.391		-1.790*	-1.442	-1.607*	-1.362
		(0.926)		(0.908)	(0.946)	(0.897)	(0.869)
gen_alc		0.481		0.423	0.539	0.706	0.494
		(0.607)		(0.681)	(0.596)	(0.581)	(0.591)
FCI			0.518***	0.438**			
			(0.190)	(0.197)			
F					0.655		
					(0.426)		
I						-1.426**	
						(0.576)	
S							1.056***
							(0.383)
Constant	40.70***	40.98***	40.34***	40.78***	42.07***	44.93***	41.52***
	(1.009)	(1.124)	(1.017)	(1.119)	(0.745)	(0.993)	(0.861)
N	162	162	162	162	162	162	162
R-squared	0.119	0.142	0.038	0.072	0.135	0.161	0.174
Test Breusch-Pagan (Prob > Chi ^{2})	0.3577	0.2028	0.6463	0.5195	0.2150	0.0937	0.2757
VIF	1.02	1.09	1.00	1.07	1.08	1.07	1.09

*** p<0.01, ** p<0.05, * p<0.1 / Robust standard errors in parentheses

4.2 Influence of financial condition and political factors on the level of implementation of sustainable development in the People and Prosperity areas

In Appendix II can be seen the correlations between the different dimensions of the financial condition and the two areas selected for the analysis. The results show that the correlations of the financial condition dimensions are higher with the Prosperity than with the People area, although the total financial condition indicator is not statistically significant in either of the two areas. The liquidity and budgetary solvency are significantly correlated with the prosperity area, while the dimension of public services affects the People area, that is, having more risk in the area of public services, as a consequence of having higher expenditures in them, shows higher achievements in the People area.

Table 5 shows the models developed and confirms the results obtained in the correlation matrix. In Model 8, it can be appreciated that having a higher risk in the dimension of solvency of public services leads to better results in the People area. That is, the municipalities that have higher current expenses and capital expenditures, in comparative terms, achieve higher scores in sustainable development in the area of *People*. In this sense, it can be highlighted that aspects such as municipal aid to eradicate poverty, equality policies or local sanitation are issues related to this area and provided by local governments. Model 11 and Model 12 show the impact of liquidity and budgetary solvency in the area of *Prosperity*. Those entities that have higher risk of budgetary solvency, and therefore worse situation in their dimensions, show better situation in the area of prosperity. It is possible that they have allocated more resources to the implementation of aspects related to sustainable communities, responsible production and the introduction of new types of non-polluting energy and therefore have been able to improve aspects related to prosperity.

Table 5 –Impact of Financial Condition and political factors on People and Prosperity areas of SDGs

	Model 8 People	Model 9 People	Model 10 People	Model 11 Prosperity	Modelo 12 Prosperity _	Modelo 13 Prosperity
L	-0.219	-0.308		-0.648*	-0.665**	
	(0.271)	(0.290)		(0.339)	(0.336)	
SOLVP	0.107	0.0772		0.376**	0.402**	
	(0.142)	(0.148)		(0.188)	(0.200)	
SP	0.493*	0.398		0.492	0.524	
	(0.277)	(0.285)		(0.324)	(0.352)	
ideolog		0.199			0.570	
		(0.341)			(0.378)	
may_gob		-0.0262			0.0278	
		(0.582)			(0.560)	
gen_alc		0.572			-0.0544	
		(0.350)			(0.432)	
FCI			0.158			0.232
			(0.122)			(0.150)
Constant	15.26***	15.25***	15.03***	17.65***	17.20***	17.60***
	(0.715)	(0.754)	(0.695)	(0.809)	(0.892)	(0.813)
Observations	162	162	162	162	162	162
R-squared	0.025	0.042	0.011	0.071	0.084	0.017
Test Breusch-Pagan (Prob > Chi ^{2})	0.2535	0.1222	0.0491	0.9739	0.7013	0.8017
VIF	1.02	1.09	1.00	1.02	1.09	1.00

*** p<0.01, ** p<0.05, * p<0.1 / Robust standard errors in parentheses

C) Influence of changes in financial condition and political factors on the progress in SDGs, and in People and Prosperity areas (2020 compared to 2018)

In order to understand how improvements or deteriorations in the financial condition influence in the implementation of SDGs, we have carried out the analysis from a dynamic perspective. In the analysis, it must be taken into account that if the sign of the variable that includes the variation is positive, it means that increases in financial risk led to an increase in the level of implementation of the SDGs; on the other hand, if the sign is negative, it is interpreted that reductions in the variation of financial risk will affect a greater implementation of the SDGs.

The correlation matrix (Appendix III) and the models proposed in this section (Table 6), show that the reduction of liquidity risk favours the level of implementation of the SDGs as well as of the two areas analysed, therefore that those municipalities that have improved in this dimension have been able to achieve better results in the implementation of the SDGs.

There is also an interesting result about political factors. While in the previous models the political variables were mainly not statistically significant (only one was in two models), in this section it is obtained that those municipalities in which there has been a change in the political party of government have higher progress in the SDGs.

With respect to the two areas analyzed, it can be observed in Model 19 that those municipalities that have reduced their financial risk or improved their financial situation have obtainer better progress in the SDGs *Prosperity* area, in which also has a positive impact the changes of political party in government. In the People area, in addition to liquidity, a positive change in budgetary solvency (worse budgetary solvency) has a positive impact in the People area, so that entities that increase their risk in this dimension achieve higher progress in this area.

Table 6 –The impact of the financial condition and political factors in People and Prosperity SDGs areas

VARIABLES	Model 14 v_ODS	Model 15 v_ODS	Model 16 v_people	Model 17 v_people	Model 18 v_prosperity	Model 19 v_prosperity
v_L	-2.716**		-1.192**		-1.506*	
	(1.129)		(0.593)		(0.894)	
v_SOLVP	0.203		0.491**		-0.320	
	(0.505)		(0.236)		(0.344)	
v_SP	0.771		0.259		0.186	
	(0.753)		(0.435)		(0.623)	
ideolog	0.505	0.450	0.383	0.399	-0.0234	-0.0503
	(0.990)	(0.978)	(0.519)	(0.521)	(0.695)	(0.670)
may_gob	0.366	0.0317	1.110	0.954	-0.150	-0.317
	(1.436)	(1.375)	(0.744)	(0.697)	(0.958)	(0.920)
gen_alcal	-0.972	-1.021	-0.0760	-0.129	-0.635	-0.623
	(0.786)	(0.849)	(0.443)	(0.485)	(0.550)	(0.559)
change_party	1.992**	1.817**	0.593	0.658	1.726**	1.578**
	(0.904)	(0.880)	(0.475)	(0.452)	(0.661)	(0.635)
v_FCI		-0.173		0.321		-0.506*
		(0.430)		(0.223)		(0.294)
Constant	-2.139**	-1.974**	-1.004**	-1.026**	-0.0837	0.0237
	(0.837)	(0.848)	(0.450)	(0.487)	(0.578)	(0.562)
Observations	81	81	81	81	81	81
R-squared	0.166	0.090	0.147	0.085	0.181	0.163
Test Breusch-Pagan (Prob > Chi 2)	0.2669	0.9509	0.2912	0.5339	0.8876	0.4249
VIF	1.09	1.06	1.09	1.06	1.09	1.06

*** p<0.01, ** p<0.05, * p<0.1 / Robust standard errors in parentheses

5 Discussion and Conclusions

Local governments, as responsible for providing services to citizens, have a fundamental role in achieving the SDGs. The efforts necessary and the achievements in its implementation may be affected by the socioeconomic and demographic conditions in which the municipalities operate, but also by their own economic policies, their financial management and their political context. These are some of the factors that can influence the achievement of results in this area. Therefore, having knowledge about the incidence of these factors will allow progress in achieving the SDGs, and in turn will be relevant in evaluating the efficiency of municipalities (Rios et al., 2022).

This paper aims to contribute to research on sustainable development in local administrations, analyzing the impact of the financial condition, and of its respective dimensions, as well as political factors, in the achievement of the SDGs. A priori, it could be thought that those municipalities that in comparative terms have better financial condition indices or lower financial risks can face the implementation of the SDGs and the application of active policies to achieve them with a better position, as well as the possibility of allocating more resources. However, with a line of reasoning that presents the opposite side of this argument, it can be considered that less prudent financial policies and therefore leading to riskier financial situations can lead to better results in achieving the SDGs. For this reason, it is important that this issue be analyzed both from a static and dynamic perspective, that is: How do changes in the financial situation affect the achievement of the SDGs?

In addition, within the SDGs, in the context of local entities, those that are related to people and prosperity (Bisogno et al., 2023) acquire special relevance, since it is in which they can contribute most directly. with their policies and strategies. That is why it is important to know the specific effect that financial and political variables have in these two areas.

The results of the study confirm that the financial management of municipalities has significant effects on the achievement of the SDGs, both globally and in the areas of *People* and *Prosperity*, in which local entities can make the greatest contribution with their local policies (Bisogno et al., 2023), not only from a global perspective but also from the different dimensions that compose the indicator of financial conditions. In particular, in liquidity, the results indicate that better positions also lead to better results in achieving the SDGs, so local governments must be especially careful with cash management and short term receivables and payables. These are also part of the cash surplus, an important variable in local financial management, similar to working capital in companies. The average payment period to suppliers is also relevant. This indicates the importance of an adequate cash management and respect the periods for payment to suppliers, due to its impact in achieving sustainable development, a relationship also found in Benito et al. (2023). The authors observe that greater advances in the SDGs have effects in the reduction of the payment periods to suppliers.

Budgetary solvency and solvency of public services also affect the achievement of the SDGs, and those entities with higher level of risks, derived from more efforts in current expenses or capital expenditures, are the ones that have the best results in achieving the SDGs, in line with the arguments raised by Mutiarani and Siswantoro (2020). These effects of solvency on the SDGs are also found in the *People* area (SDGs 1 to 6), in which the solvency of public services has a special impact, and in the *Prosperity* area (SDGs 7 to 12), in which budgetary solvency shows influence.

In the analysis focused on budgetary solvency, the financial autonomy and sustainability are the variables that show statistically significant results. Financial

autonomy has a positive effect, so that municipalities that can meet their spending commitments (current and total) with more independence and liquidate more of their own income, can derive a higher level of achievement of the SDGs. However, sustainability has a negative impact, which indicates that it is preferable for municipalities to maintain balanced positions, in which deficit situations are not reached but that they do not have excessive surplus positions either. These balanced positions, or even deficit risk, allow them to advance in the achievement of the SDGs, particularly in the Prosperity area.

From a dynamic perspective, and in line with the previous results, improvements in the liquidity situation go hand in hand with improvements in the achievement of the SDGs, while the variation in budgetary solvency has a statistically significant impact in the variations achieved in the area of *People*. The global financial condition index only shows a statistically significant incidence in the *Prosperity* area.

The results of the political variables show that ideology, having an absolute majority in the government or the gender of the political representative do not affect the levels of sustainable development, and therefore political representatives unanimously seek the best results in achieving the SDGs, in line with the results obtained by Bisogno et al. (2022). However, a change of political party can have a positive impact on the progress achieved in the years after the change of government, both globally and in the area of Prosperity.

In summary, the results of the study reveal the impact of the financial management developed by local entities, and the resulting financial condition, on the sustainable development of their municipalities. Prudent cash management policies are advisable, specifically to obtain good positions in the cash surplus and in the average payment period to suppliers, while riskier positions in budgetary solvency and in public services, with higher current expenses and capital, also have a positive effect on the achievement of the SDGs, especially in the area of People. These results are consistent with those obtained in previous studies that show the importance of taking care of financial aspects due to their impact on sustainable development (Bisogno et al., 2023).

The results obtained show a statistically significant relationship between the financial factors of a local entity and the level of implementation of the SDGs, while political factors do not seem to have a significant influence on the differences between municipalities in the level of sustainable development. These results can be useful for managers of local entities, as well as for those responsible for municipal policies, given that when designing the strategies and lines of action to implement the SDGs, they must ensure adequate financial capacity to avoid this being a barrier to achieve the SDGs. In addition, the results confirm that regardless of the ideology of the political party in power, governments try to implement the SDGs, although the changes in political parties have a positive impact, since it led progress in the implementation of the SDGs.

This paper is not exempt from limitations, mainly those related to the data used. Thus, the level of implementation of the SDGs is available exclusively for 100 municipalities, and in addition, various indicators used to obtain the level of implementation are calculated from data sources from various years, so that the consideration of only the budgetary data corresponding to the year of the score may be insufficient. Due to the delayed effect that it can cause, it could be interesting to consider the financial risk of a year with future achievements, but the limitations in the availability of data condition the possibility to carry out this analysis study. It would be desirable to expand the study with more entities and/or with a longer time horizon, in order to check if the results obtained are confirmed and can be considered robust.

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Appendix I – Pearson's correlation coefficients between financial condition and implementation of SDGs

	ODS	L	SOLVP	F	I	S	SP	ideolog	may_gob	gen_alc
ODS	1									
L	-0.1804**	1								
SOLVP	0.2153***	-0.1212	1							
F	0.1475*	-0.0551	0.8396***	1						
I	-0.2225**	-0.0593	-0.0946	-0.2235***	1					
S	0.3153***	-0.0838	0.7677**	0.5147***	-0.5797***	1				
SP	0.2242***	0.0745	0.0884	-0.0394	-0.1684**	0.2514***	1			
ideolog	0.0122	0.0521	-0.0877	-0.0337	-0.0768	-0.0442	-0.0473	1		
may_gob	-0.1919**	0.1832**	-0.2302***	-0.2338***	0.0213	-0.1464*	0.0363	0.0241	1	
gen_alc	0.1054	0.1898**	0.1403*	0.1039	-0.0241	0.1247	0.2510**	0.0632	-0.0042	1
FCI	0.1944**	0.3667***	0.7786***	0.6229***	-0.1715**	0.6813***	0.4991**	-0.0837	-0.0926	0.3052***

Appendix II - Pearson's correlation coefficients between financial condition and SDGs areas of People and Prosperity

	People	Prosperity
People	1	
Prosperity	-0.0404	1
L	-0.0584	-0.1671**
SOLVP	0.0735	0.1925**
F	-0.0011	0.1812**
I	-0.0761	-0.2327***
S	0.1460*	0.2662***
SP	0.1325*	0.1157
ideolog	0.0419	0.0857
may_gob	-0.0249	-0.0583
gen_alc	0.1427*	0.0216
IFC	0.1027	0.1286

Appendix III - Pearson's correlation coefficients between the changes in the financial condition and progress in SDGs implementation

	v_ODS	v_people	v_prosperity
v_ODS	1		
v_people	0.4993***	1	
v_prosperity	0.8269***	0.0596	1
v_L	-0.2952***	-0.1804	-0.2509**
v_SOLVP	-0.0423	0.1706	-0.1883*
v_SP	0.0097	-0.0036	-0.0558
change_party	0.2571**	0.1283	0.3202**
v_FCI	-0.1339	0.1231	-0.2783**