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Impairment Model of Financial Instruments

Modelo de Deterioro de los Instrumentos Financieros

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RESUMEN

ABSTRACT

Through an applied exercise, this research article sought to document the impairment model of financial instruments proposed by the International Financial Reporting Standard (IFRS 9). For this purpose, an investigation was used based on the documentary data source, with a qualitative approach and descriptive-explanatory scope. Among the main findings, it is found that the application of the new impairment requirements of IFRS 9 presupposes an increase in the provisions for credit losses of the organizations, in which the need to use methodologies to estimate the probability is evident of non-compliance as a safeguard measure for organizations.

Keywords: Economic information, organization, provision, financial resources

JEL classification: M40; M21

Received: 07-07-2022

Revised: 17-09-2022

El presente artículo de investigación buscó, a través de un ejercicio aplicado, documentar el modelo de deterioro de los instrumentos financieros, propuesto por la Norma Internacional de Información Financiera (NIIF 9). Para tal fin, se acudió a una investigación en función de la fuente de datos de tipo documental, con enfoque cualitativo y alcance descriptivo – explicativo. Dentro de los principales hallazgos, se encuentra que la aplicación de los nuevos requisitos de deterioro de la NIIF 9 presuponen un alza en las provisiones para pérdidas crediticias de las organizaciones, en las que se evidencia la necesidad de utilizar metodologías para la estimación de la probabilidad de incumplimiento, como medida de salvaguarda para las organizaciones.

Palabras clave: Información económica, organización, provisión, recursos financieros

Clasificación JEL: M40; M21

Accepted: 12-11-2022

Published: 13-01-2023

Editor: Carlos Alberto Gómez Cano 问

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Cite as: Prada, J. (2023). Modelo de Deterioro de los Instrumentos Financieros. Región Científica, 2(1), 202317. https://doi.org/10.58763/rc202317

INTRODUCTION

When financial assets have not been measured at fair value through profit or loss, entities must estimate the probability of default, considering the impairment model of IFRS 9. Different methodologies estimate the probability of default based on historical or market information. However, in some cases, entities do not have historical, market, or competitive information.

According to Delgado et al. (2020), proposing a model by which an entity can obtain a competitive rating is necessary as a first step to estimating the probability of default. It should differ from all other models, such as the database size and focus on unrated companies. The competitor's score should be considered in line with its key financial indicators (Duan et al.,2018). This score will place the competition within a sector distribution previously constructed, and companies with a credit rating published by rating agencies or financial providers will be used; the reliability of the model is tested, and the internal credit rating of several companies is calculated from the officially quoted one to allow determining their scopes and probabilities (Deloitte, 2019).

According to Kvatashidze and Sabauri (2019), the borrower's credit quality is related to the credit spread over the riskfree rate the lender should charge for the loan. The alternative is first to use a model to obtain an internal rating of the borrower to assign a credit spread. Once the internal credit rating is obtained, the credit spread is estimated, for example,



by using the yields of quoted bonds of similar companies; that is, companies with the same or official rating in the same sector and country.

METHODS

According to Elizondo (2002), this research is carried out through the consultation of documents, as it reveals data that exist or have existed and have been supported by different studies, with a qualitative approach, and is recognized for its ability to add a new dimension to intervention studies that are not obtained only through the measurement of variables.

RESULTS

Much of the accounting literature has been devoted to predicting corporate failure (Tascón & Castaño,2012) and has not been useful for assessing IFRS 9 impairments. However, studies are lacking in focusing on unlisted/ unrated entities. According to Duan et al. (2018), the relative paucity of academic attention is partly due to the lack of publicly available data on private companies. Even if accounting data on private firms are available, the lack of market data, such as stock prices, poses an additional obstacle to studying their defaults, as recent advances in credit risk modeling often require some form of market information.

Consistent with the above, obtaining a unified framework, which incorporates the specific characteristics of a company along with its sectoral and regional factors and which allows incorporating market assessments of credit risk into the book value of financial assets, becomes a model used by lenders, banks or other non-bank lenders, who need to determine whether to lend it or not, and the interest rate to charge the borrower (Varyani & Soral, 2014). Often, these lenders need market information about the borrower's credit quality.

The credit quality of the borrower is related to the credit spread over the risk-free rate that the lender should charge about the loan, which, according to Ryan (2012), means a possibility to use the model to obtain an internal rating of the borrower as a first step to assign a credit spread; this statement is ratified by Beerbaum and Ahmad (2015), who determines that, once the internal credit rating is obtained, the credit spread should be estimated, for example, using the yields of the quoted bonds of similar companies, i.e. using companies with the same official rating in the same sector and country.

From a market perspective, the best method is to derive the probability of competitor default from the spread of a Credit Default Swap (CDS), which is quoted in an active market. For Canales (2018), this is because the main influence on the CDS spread is the Probability of Default. A company's CDS spread comes from the annual cost of protection against the severity of losses caused by the company's default.

When discussing spread, Ruíz and Basulto (2018) state that the bond yield spread is the excess return promised on the bond over the risk-free rate. The usual assumption is that the excess yield compensates for the probability of default. However, this assumption is not perfect because, for example, the price of a corporate bond is affected by its liquidity: the lower the liquidity, the lower its price.

If sufficient information is unavailable, other possible methods exist to estimate the probability of default. Thus, for example, the spread of CDSs quoted on bonds issued by the same counterparty with the same maturity in a non-active market or the YTM quoted on bonds issued by this counterparty with the same maturity in a non-active market. According to Cerquera (2015), the spread should be adjusted to account for the difference in maturity: the quoted YTM of bonds issued by the counterparty with similar maturity in an active or non-active market. The probability of default is adjusted for the difference in maturity. Suppose the specific competition does not have quoted CDS of bonds in active or non-active markets. In that case, the probability of default can also be obtained from quoted CDS or bonds of other companies with the same rating and characteristics according to sector, country, size, etc. (Arias, 2011). If the specific competitor does not have a quoted bond CDS nor a public credit rating, the entity could internally estimate a credit rating for the competitor.

On the matter, Morales et al. (2016) mention that the model's objective is to estimate the internal credit rating. Once the credit rating is obtained, there are two possibilities to estimate the probability of default: obtain the probability of default from listed CDS or bonds of companies with the same rating and similar characteristics such as sector, country, size, etc., or use default studies published by rating agencies, which show updated default rates for various rating categories and "rating migration" or transition matrices. However, this second possibility does not include prospective adjustments (Ruano, 2017).

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On the other hand, as already mentioned, according to IFRS 9 and corroborated by Rojas and Azúa (2020), the estimation of future credit losses depends on the classification of the financial asset in three possible stages. If the financial asset is classified in stage 1, one-year expected losses are estimated, i.e., the one-year probability of default is used. If the financial asset is classified in stage 2 or 3, lifetime expected losses are estimated, i.e., the probability of default to maturity is used. According to Célleri (2019), all financial assets are initially classified in stage 1. A financial asset is reclassified to stage 2 if there has been a significant increase in credit risk since initial recognition. If the financial asset is impaired and credit losses are incurred, the financial asset is classified in stage 3 (Morales et al., 2016).

According to Mancheno et al. (2021), the entity must perform the initial recognition at each reporting date, considering the financial instrument's credit risk and identifying whether it has increased significantly since its initial recognition. In contrast, Calderón (2016) defines that if, when performing the respective assessment, the entity identifies that a default has occurred over the financial instrument's life, the risk change can be used instead of the change in the number of expected credit losses.

For their part, Arjol and Costa (2021) argue that the assessment shall be made by comparing the risk of default on the financial instrument at the date of initial recognition and shall consider reasonable and supportable information that is available without undue cost or effort, that is indicative of a significant increase in credit risk since initial recognition. In paragraph 5 of IFRS 9, a significant change in the credit rating of the instrument is a possible way of analyzing whether there has been a significant increase in credit risk since initial recognition. This means that the FRS model can also be used for this purpose.

The entity, as established by Palacios (2021), should measure the allowance constantly, as part of the exception to the stages, at a value equal to the expected credit losses during the useful life for:

(a) Recognitions of transactions within the scope of IFRS 15 involving trade receivables or contractual assets. For this purpose, two subparagraphs are stipulated so that: (i) by the International Financial Reporting Standard IFRS - 15, there is no significant financing component or, (ii) there is a significant financing component by IFRS 15, if it has been elected to measure the allowance for losses at a value equal to the expected credit losses during the useful life, as an accounting policy, to be applied to all trade receivables or contractual assets, and may be applied separately to trade receivables and contractual assets.

(b) Lease receivables resulting from transactions within the scope of IAS 17 if the entity elects as an accounting policy to measure the allowance for losses at an amount equal to lifetime expected credit losses. For Diaz (2017), the established accounting policy can be applied to all lease receivables independent of finance and operating leases.

The main feature of the model is the information obtained from competitors' financial statements, i.e., the main financial indicators. Based on the values of several key indicators in the Statement of Financial Position and Income Statement, the company is assigned a certain position within a consistent distribution of companies that have an official credit rating issued by a rating agency or listed by the relevant financial providers, and that belong to the same or a similar industry.

The position within the distribution is related to a given credit rating. Agencies usually avoid claiming that credit ratings predict default probabilities. However, they publish detailed default studies showing the historical migration of ratings and defaults as a function of initial rating and time horizon. Analysts and risk managers routinely use the data from these studies to estimate default probabilities because, in practice, a rating typically estimates a range of default probabilities.

Case study

Financial instruments, according to IFRS 9, are contracts that generate a financial asset and, therefore, for the other entity correspond to a liability. For a better explanation, the following examples will be used:

Example 1: Short-term receivable

The company has a six-month receivable of \$25,000,000, the credit sale and recognition of payment of which are shown in table 1 and table 2, respectively.

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Table 1. Revenue recognition		
Concept	Debit	Credit
Account receivable	\$25,000,000	
Sales revenue		\$ 25,000,000
a		

Source: own elaboration

Table 2.		
Acknowledgement of p	ayment	
Concept	Debit	Credit
Cash	\$25,000,000	
Account receivable		\$ 25,000,000
Sou	rce: own elaboratio	n

The financial component has no financial component, since the loan is for less than 12 months and, therefore, the amortized cost is already included.

Example 2: Long-term account receivable

A credit invoice is presented for \$20,000,000, whose cash price is \$18,000,000 and with a credit period of 15 months. In view of this, it is identified that:

- Firstly, this has a financial component, since it is a long-term invoice.

- To determine the implicit rate, the nominal sales amount is taken, minus the cash price over the 15 months of credit, which is estimated at a value of 11.111%.

- The monthly implicit rate formula applied (1+Implicit rate-cash price) ^ (1/15)-1, would be equivalent to: (1+11.111%) ^ (1/15)-1 for a monthly implicit rate of 0.705%.

In table 3, the value of the spot price is recognized, in accordance with the recognition of the fair value pertaining to the spot value.

Table 3.		
Cash price recognition		
Concept	Debit	Credit
Account receivable	\$18,000,000	
Sales revenue		\$ 18,000,000
Sourc	e: own elaboration	

From the data related to the implicit rate, table 4 shows the amortized cost, which includes the number of months, the value of the cash price, the financial income and the final balance.

Table 4. Cash price	e recognition		
Month	Beginning balance	Financial Income	Ending Balance
1	18,000,000	126,878	18,126,878
2	18,126,878	127,772	18,254,650
3	18,254,650	128,673	18,383,322
4	18,383,322	129,580	18,512,902
5	18,512,902	130,493	18,643,395
6	18,643,395	131,413	18,774,808
7	18,774,808	132,339	18,907,147
8	18,907,147	133,272	19,040,419
9	19,040,419	134,211	19,174,630

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10	19,174,630	135,157	19,309,788
11	19,309,788	136,110	19,445,898
12	19,445,898	137,069	19,582,967
13	19,582,967	138,036	19,721,003
14	19,721,003	139,009	19,860,012
15	19,860,012	139,988	0
	Source: ov	wn elaboration	

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The interest accrued on the account receivable is recognized monthly on the debit side and interest income is recognized monthly on the credit side.

Example 3: Loans receivable

Table 5

A loan of \$10,000,000 is made at a rate of 1.5% for an annual term.

First, the monthly amount to be paid is determined. To this end, the calculation is made with the loan value, the rate and the term in months, which is equivalent to 916,800. Table 5 of amortized cost is prepared, in which the number of months, the value of the cash price, the financial income, the collections and the final balance are contemplated.

Month	Beginning Balance	IF	Charges	SF
1	10,000,000	150,000	-916,800	9,233,200
2	9,233,200	138,498	-916,800	8,454,898
3	8,454,898	126,823	-916,800	7,664,922
4	7,664,922	114,974	-916,800	6,863,096
5	6,863,096	102,946	-916,800	6,049,242
6	6,049,242	90,739	-916,800	5,223,181
7	5,223,181	78,348	-916,800	4,384,729
8	4,384,729	65,771	-916,800	3,533,700
9	3,533,700	53,005	-916,800	2,669,905
10	2,669,905	40,049	-916,800	1,793,154
11	1,793,154	26,897	-916,800	903,251
12	903,251	13,549	-916,800	0

For the recognition, the loan receivable is recorded in the debit in the amount of \$10,000,000 and the cash account in the credit in the amount of \$10,000,000. In the monthly recognition, the cash receipt of the monthly installment and the financial income are recorded in the debit.

Example 4: Investments in Bonds

A bond with a value of \$5,000,000 was acquired, with a face value of \$6,000,000 for a term of 12 months, which has a rate of 1.5% per month and with a cost attributable to the acquisition of the bond with an interest of 1.3%. The first recognition is related in table 6, with the investment and the cash disbursed, in which the value of the purchase is included together with the value of the attributable cost.

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Table 6.					
Investment and co	ash disbursed				
Concept	Debit	Credit			
Invested bonus	\$5,062,500				
Banks		\$5,062,500			
Source: own elaboration					

To determine the estimated value in each of the projections, the bond rate corresponding to 1.5% for the nominal value is calculated in table 7, obtaining a total value of \$90,000, which, at the same time, is the input to determine the effective rate of return, amounting to 3.1%.

•					
Bond rate					
Disbursement	Flows Collected	Flow			
-5,062,500		- 5,062,500			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	90,000	90,000			
	6,090,000	6,090,000			
	TIR	3.1%			
	te Disbursement -5,062,500	Ite Disbursement Flows Collected -5,062,500 90,000 -5,062,500 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 90,000 70,000 90,000 71R			

Source: own elaboration.

Table 8, amortized cost, considers the number of months, financial income, cash flows collected and the final balance.

Table 8. Amortized cost of bonds					
Month	Beginning Balance	Financial Income	Collections	Ending Balance	
1	5,062,500	155,770	- 90,000	5,128,270	
2	5,128,270	157,794	- 90,000	5,196,064	
3	5,196,064	159,880	- 90,000	5,265,943	
4	5,265,943	162,030	- 90,000	5,337,973	
5	5,337,973	164,246	- 90,000	5,412,219	
6	5,412,219	166,531	- 90,000	5,488,750	
7	5,488,750	168,885	- 90,000	5,567,635	
8	5,567,635	171,313	- 90,000	5,648,948	
9	5,648,948	173,815	- 90,000	5,732,763	
10	5,732,763	176,394	- 90,000	5,819,156	
11	5,819,156	179,052	- 90,000	5,908,208	
12	5,908,208	181,792	- 6,090,000	0	

Source: own elaboration

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Example 5: Investments in bonds, which are expected to be sold before maturity

There is an invested value of \$500,000, which, at the end of the period has a value of \$600,000, with a term of one year, monthly interest of 1.5% and an incremental cost of \$1.25%. The first recognition, shown in table 9, corresponds to the investment and cash disbursed, in which the value of the purchase is included together with the value of the attributable cost.

Table 9.		
Investment and cas	h disbursed sale of bor	nd before maturity
Concept	Debit	Credit
Invested bonus	\$506,250	
Banks		\$506,250
S	ource: own elaboration	[

The value to be collected must be determined on a monthly basis. For this, the nominal value is calculated, which corresponds to \$600,000 and, multiplied by the monthly interest value of 1.5%, a value of \$9,000 is obtained, as shown in table 10.

Table 10.Value to be charged monthly				
Month	Disbursement	Flows collected	Flow	
0	-506,250		-506,250	
1		9,000	9,000	
2		9,000	9,000	
3		9,000	9,000	
4		9,000	9,000	
5		9,000	9,000	
6		9,000	9,000	
7		9,000	9,000	
8		9,000	9,000	
9		9,000	9,000	
10		9,000	9,000	
11		9,000	9,000	
12		609,000	609,000	
		TIR	3.08%	

Source: own elaboration.

Once the internal rate of return has been obtained, table 11 of the amortized cost is prepared, which includes the month, the financial interest and the charges arising from the monthly flows of 9,000.

Table 11.						
Amortized	cost and	financial	interest	month	to	month

Month	Beginnig Balance	Financial Income	Collections	Ending Balance	Fair Value	Fair Value Adjustment
1	506,250	15,577	-9,000	512,827	534,172	21,345
2	512,827	15,779	-9,000	519,606	523,817	4,211
3	519,606	15,988	-9,000	526,594	530,982	4,388
4	526,594	16,203	-9,000	533,797	542,726	8,929

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5	533,797	16,425	-9,000	541,222	555,921	14,699
6	541,222	16,653	-9,000	548,875	569,650	20,775
7	548,875	16,889	-9,000	556,764	574,473	17,710
8	556,764	17,131	-9,000	564,895	579,388	14,493
9	564,895	17,381	-9,000	573,276	584,397	11,120
10	573,276	17,639	-9,000	581,916	589,500	7,585
11	581,916	17,905	-9,000	590,821	594,701	3,880
12	590,821	18,179	-609,000	0	0	0
Source: own elaboration						

The fair value is determined according to market data, and this should be taken to make the adjustment with the financial income as an input for accounting purposes (See table 12).

Table 12.		
Financial income adjustment		
Concept	Debit	Credit
Cash	\$9,000	
Financial income (interest)		\$15,577
Investment in Bonds (Assets)	\$6,577	

Source: own elaboration

Recognition is made in table 13, by fair value, and the bond investment adjustment and the balancing entry affecting comprehensive income is taken.

Table 13.		
Fair value adjustment		
Concept	Debit	Credit
Investment in Bonds (Assets)	\$ 21,345	
ORI- Earnings from VR (Equity)		\$21,345
Source: own	elaboration	

To recognize the deferred liability, in table 14, the value of the investment in bonds and the percentage corresponding to the deferred tax are taken, since a potential gain and a potential future income tax expense are recorded.

Table 14.				
Fair value adjustment				
Concept	Debit	Credit		
ORI- Earnings per	6,617			
VR (Equity)				
IRD Liabilities		6,617		

Source: own elaboration

CONCLUSIONS

A company's relative level of indebtedness is usually the factor that most influences its credit risk. Growth and profitability are also considered but are linked to liabilities and equity. Since accounting information is taken as a basis, two possible limitations of the model are the manipulation of earnings and the fact that qualitative information is not considered. Regarding earnings manipulation, it is identified that companies deviating from expected credit ratings demonstrate that these empirically estimated credit rating deviations are associated with earnings management activities. Therefore, if the financial information has been manipulated, the credit rating obtained will also differ from the correct rating.

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Within the importance of IFRS 9, it is evident that the impairment measurement is not applied to losses incurred but based on expected losses, which, for companies, means the application of the amortized cost, the increase of interest, and the decrease of payment. According to the periodicity of the rights on the real assets of the issuer, within the international standard, financial assets are identified.

For this reason, the standard allows companies to identify and project according to the situations that generate credit losses, and these same allows to be constantly evaluated to give a rating against the credit risk. This allows a strategy against the risk generated from the credits so that the pertinent actions are not taken once the risk materializes but to use the impairment model and determine the losses.

Another favorable element in the application in non-financial entities concerns the determination of the risks of non-financial items, as long as they comply with the requirements of the international financial standard, as this allows identifying them from the market price since it allows designating a part of the risk against the component of the value of the product or raw material.

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FINANCING

No external financing.

DECLARATION OF CONFLICT OF INTEREST

The author declares that she has no conflict of interest.

ACKNOWLEDGMENTS (VERSION ORIGINAL ESPAÑOL)

La autora agradece al programa de Contaduría Pública de la Corporación Unificada Nacional de Educación Superior – CUN.

AUTHORSHIP CONTRIBUTION

Conceptualization: Jasleidy Astrid Prada Segura. Research: Jasleidy Astrid Prada Segura. Methodology: Jasleidy Astrid Prada Segura. Writing - original draft: Jasleidy Astrid Prada Segura. Writing - revision and editing: Jasleidy Astrid Prada Segura.