



Dynamic provisioning in Spain

José María Roldán
Director General, Banking Regulation
Banco de España

Jesús Saurina
Director, Financial Stability Department
Banco de España

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Dynamic provisions



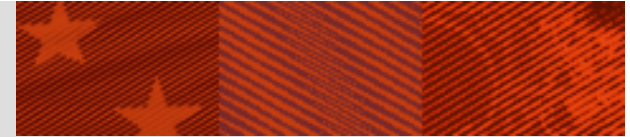
- **Two approaches to dynamic provisions**
 - **Economic approach**
 - **Accounting approach**
- **Both are consistent and complementary, reinforcing each other**
- **Dynamic/statistical/general loan loss provisions**
 - **The substance much more important than the name**

Dynamic provisions-Summary



- **Set aside in mid-2000; modified in 2004 (to be consistent with IFRS)**
- **Spanish LLP cover the increase in credit risk/losses**
- **Take into account the transition from collective assessment of losses to individually identified losses**
- **Based on extensive research and statistics on historical loan loss experience for bank loan portfolios in Spain**
- **Transparent mechanism**

Economic approach



- **Financial markets have imperfections**
- **Miss-pricing of risks**
 - **Under-pricing of risks due to over-optimism**
 - *(i.e. no more cycles, liquidity flooding,...)*
 - *difficult to deny it the years before the current crisis*
 - *search for yield*
 - **Overpricing of risks due to over-pessimism**
 - *collective failure: coordination problems*
- **Strong competition across banks and between banks and non-bank financial institutions enhances risk miss-pricing**

Economic approach



- **Banking supervisors know that banks' lending mistakes are more prevalent during upturns**
 - **Borrowers and lenders are overconfident about investment projects**
 - **Banks' over optimism implies lower lending standards**
- **During recessions, banks suddenly turn very conservative and tighten lending standards**
- **Lending cycle with impact on the real economy**

Economic approach



- **There is ample empirical evidence of looser credit standards during expansions**
 - **Riskier loans granted when credit expands fast**
 - **Under-pricing of credit risk**
- **Banking supervisors' concerns are well rooted both in theoretical and empirical ground**
- **Need of a tool to cope with the potential problems due to rapid credit growth/under-pricing of risk**
- **One answer is dynamic provisions**

Accounting framework



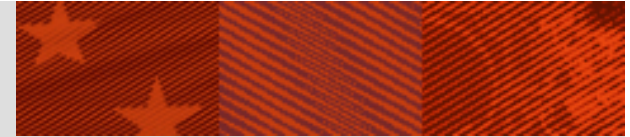
- **The provisioning framework in Spain refers to the “collective assessment for impairment”**
- **Regulation requires institutions to develop internal methodologies to estimate impairment in the loan portfolio (whether specific transactions or collective assessment)**
- **For banks which do not have their own model, Banco de España (BdE) provides a model based on the historical credit loss information obtained from the BdE’s Central Credit Register**
- **Banks are developing their own models to calculate loan loss provisions, but they have not been verified by Banco de España yet**

Accounting framework



- **BdE model applies to cover incurred losses only for credit activity in Spain**
 - **not possible to apply Spanish parameters to loans granted abroad by Spanish banks**
- **BdE model is a statistical model**
- **BdE model uses historical information to set out provisioning levels at the balance sheet date**
- **The model uses historical loss data information for homogenous groups of loans**
 - **Credit cards, mortgages, loans to SMEs, loans to governments,...**
 - **Historical means a full lending cycle**

Spanish provisioning model vs the IFRS



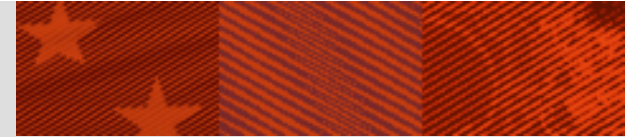
- **The Spanish dynamic provisioning model refers to the “collective assessment for impairment”**
- **The key assumption is the transition from the collective assessment to the individually impaired assets and specific provisions**
- **In the BdE model it is assumed that during periods of intensive credit risk increase (under-pricing of risk/increase in incurred losses), it takes longer for provisions to transit from collective assessment to specific provisions**
- **In other periods, the individually impaired assets are easily identified and the transition period from collective assessment to specific provision is shorter**
- **We believe that, although IAS 39 does not specifically address this issue, it does not rule out this assumption**

Accounting framework



- Banks must make provisions against the credit growth according to parameter α which is the average estimate of the credit loss (“collective assessment for impairment” in a year neutral from a cyclical perspective)
- α varies across six homogeneous groups of loans according to our historical information on credit losses
- As credit risk or incurred losses not yet identified in a specific loan translate into specific loan losses at a different speed depending on the business cycle, α is supplemented by a β parameter

Accounting framework



- β is the historical average specific provision of each group of loans. By comparing β with the current level of specific provisions, banks can assess the speed at which “unspecific” (collective) incurred losses evolve into specific losses for individual assets
- In periods of expanding credit risk/under-pricing of risk/increase in incurred collective losses the difference is positive, so is the second component of the general provision
- In periods when specific losses are much more easily identified in individual loans, the difference reverses and thus this component subtracts from the α component and may cause the generic provision fund to be drawn down
- The Spanish general provision also includes a cap in the amount of the general fund being build up...
 - to avoid excess provisioning
- ... as well as a floor
 - to cover incurred losses not yet individually identified even in a recession

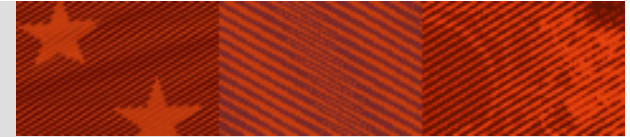
Specific mechanics

- Currently, we have specific provisions and general provisions
- General provisions are set aside according to:

$$\dot{gen}_t = \alpha \Delta C_t + \left(\beta - \frac{\dot{espe}_t}{C_t} \right) C_t$$

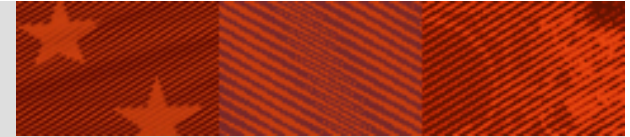
- C_t is the stock of loans and ΔC_t its variation
- α which is the average estimate of the credit loss in a year neutral from a cyclical perspective
- β is the historical average specific provision

Transparency



- Banks are required to disclose the amount of the dynamic provision, apart from the specific provision
- Thus, users of accounting statements can “undo” the impact of the dynamic provision on the P&L
- Our aim is that financial statements (balance sheet and, in particular, the P&L) properly reflect the true financial situation on the bank
 - To recognize the credit risk/losses when they appear
 - **Avoid biases in profits, dividends, and bonuses**
 - To deliver the proper incentives to investors
 - **As well as to bank managers**

Cohort example



- We present a very simple exercise to show how loan loss provisions work in Spain
- It is based on a set of restrictive assumptions
- With this exercise we try to respond to the following question:
 - “What happens to a cohort of 1,000 loans from the date they are granted to the day the last one is paid back or defaults?”

The Cohort Model



■ Assumptions :

- At $t=1$ the Bank starts its business with a portfolio of 1,000 homogeneous loans with a nominal value of 100 currency units (CU) each. Thus, the bank begins with a value of its portfolio of 100,000 CU
- All loans are classified in an homogeneous group of risk (uncollateralized loans to firms), with an associated α parameter of 1.80% and a β parameter of 0.65%
- Every loan is amortized by a constant amount that derives from a French amortization system with a fixed interest rate (of 6%) and a fixed maturity (of 10 years)
- This is a simple way to “close” the loan book in 10 years

The Cohort Model



- **Dynamics for impairments:** Every period a proportion of p_t loans becomes impaired. Of these loans, a proportion of q (fixed to 60%) remains impaired the next year. Of these impaired loans, again a proportion of q loans remains impaired. At the end of the second year impaired, the remaining amount is considered a loss, and it is dropped out of the balance sheet of the bank (i.e. it is not possible to recover any left amount of the impaired asset in the future)
- **The specific provision is assumed to be equal to 25% of the total amount of the impaired loan the first year that it is classified as doubtful. This proportion increases to 100% the second year**

The Cohort Model



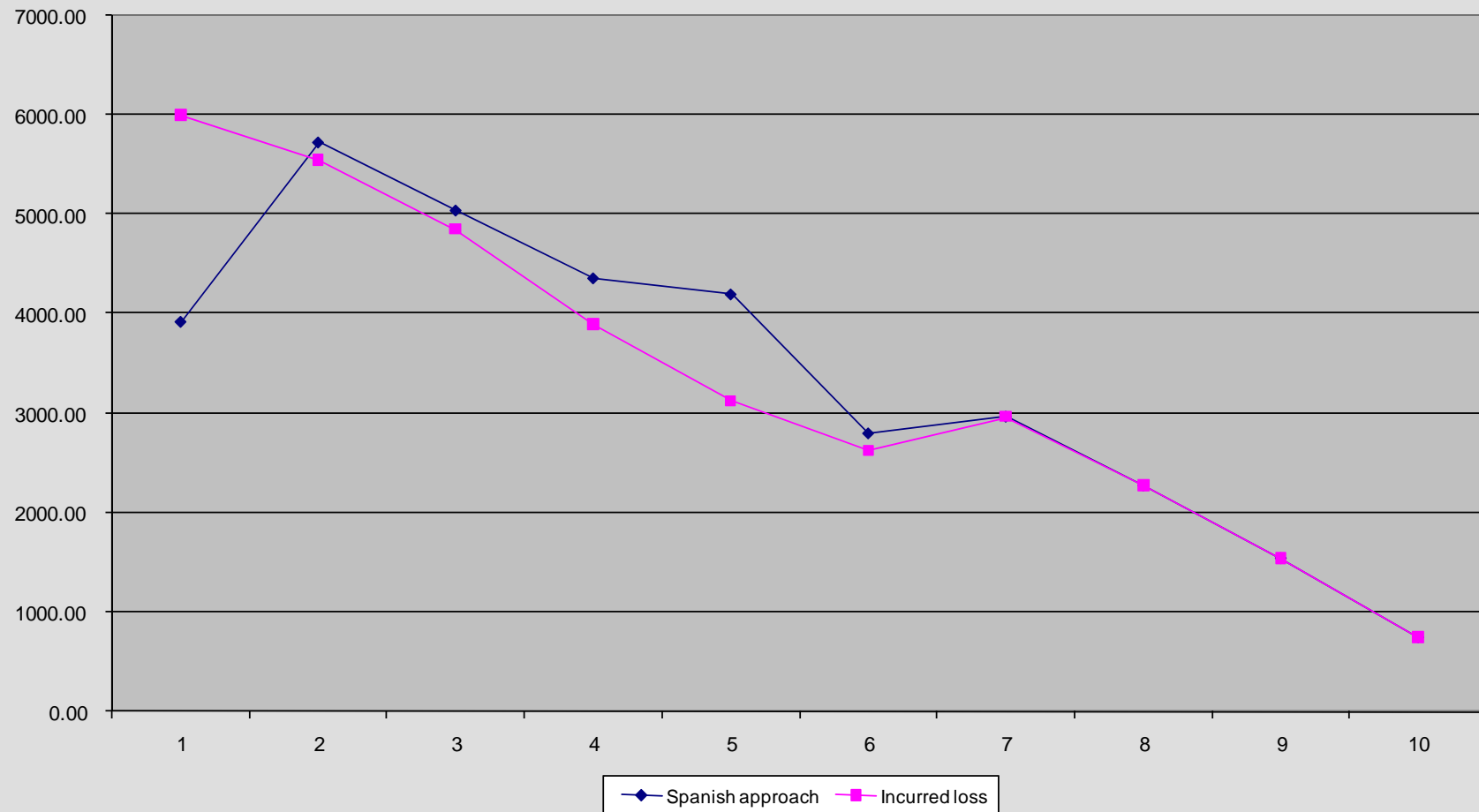
Year	Loans (Number)	Beginning Loans (CU)	Ending Loans (CU)	p	Cumulated Losses (CU)	NPL (%)	Specific Provision		αΔLoans (CU)	βLoans (CU)	Theoret. General Prov. (CU)	Theoret. General Fund (CU)	General Provision		(Spec.+Gen.Fund)/Loans (%)	
							Specific Provision (CU)	Specific Fund (CU)					General Prov. (CU)	General Fund (CU)		
1	1,000	100,000.0	92,413	0	0	0.00	0	0	1,663	601	2,264	2,264	1,663	2,079	2,079	2.25
2	1,000	92,413.2	84,371	0	0	0.00	0	0	-145	548	404	2,483	1,519	-181	1,898	2.25
3	1,000	84,371.2	75,932	1	0	1.11	211	211	-152	494	131	2,029	1,367	-190	1,708	2.53
4	1,000	75,846.7	67,088	2	0	2.90	740	866	-159	436	-463	1,245	1,208	-463	1,245	3.15
5	997	66,810.7	57,639	4	277	5.97	1,277	1,486	-170	375	-1,073	173	1,038	-1,073	173	2.88
6	991	57,232.5	47,303	2	783	5.55	1,424	1,809	-186	307	-1,303	-1,130	851	-173	0	3.82
7	978	47,079.7	35,846	1	1,769	2.94	578	735	-206	233	-551	-551	645	0	0	2.05
8	972	36,317.7	24,323	0	2,170	0.97	177	235	-207	158	-226	-226	438	0	0	0.97
9	969	24,909.9	12,420	0	2,342	0.00	0	0	-214	81	-134	-134	224	0	0	0.00
10	969	12,817.7	0	0	2,342	-	0	0	-224	0	-224	-224	0	0	0	-

- The cumulated final losses amount is close to the initial theoretical general provision set aside in year 1 and also to the effective general fund established in year 1**

The Cohort Model



Interest, net of loan losses, set one



The Cohort Model

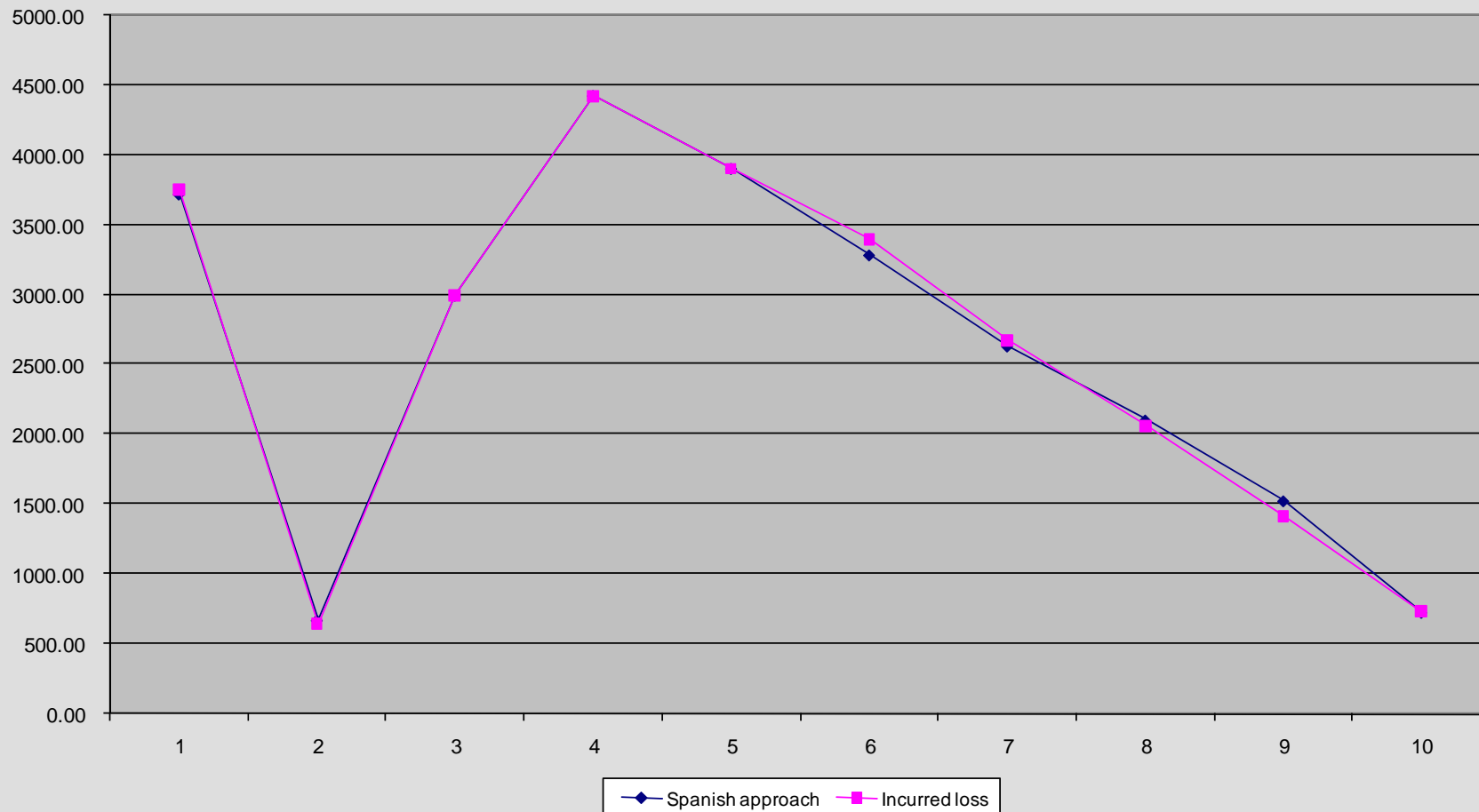


- **The difference in the interest net of loan losses introduced by the Spanish approach is more important the first year**
- **The reason is that we are assuming that the bank starts from scratch without any previous general fund, thus, it is established the first year**
- **But it is also the result of the NPL profile assumed in the exercise**
- **If we start the loan portfolio in a less favorable environment, such as the current situation in many countries, the difference is much lower, if any**
- **Therefore, the difference in profits as a result of the introduction of a system of general provisions similar to the current one in Spain depends on the conditions of the lending cycle and, in any case, there seems to be a significant difference only in the first year**

The Cohort Model-High initial NPLs



Interest, net of loan losses, set one



The Cycle Model



- **The cohort model is static. It is possible to introduce more dynamism in the loan portfolio, increasing its realism**
- **18 cohorts are considered, one by year. We have a kind of overlapping generation model where each generation is a cohort identical to the one described in the previous section**
- **The Bank starts its business at $t=-6$ with a portfolio of 1,000 homogeneous loans with a value of 100 currency units (CU) each. Until $t=0$ 1,000 new homogeneous loans are granted every year. From year 1 onwards, the number of new loans granted is related to the economic conditions assumed**
 - **i.e. loans increase more in upturns than in downturns, thus, we have a lending cycle**

The Cycle Model



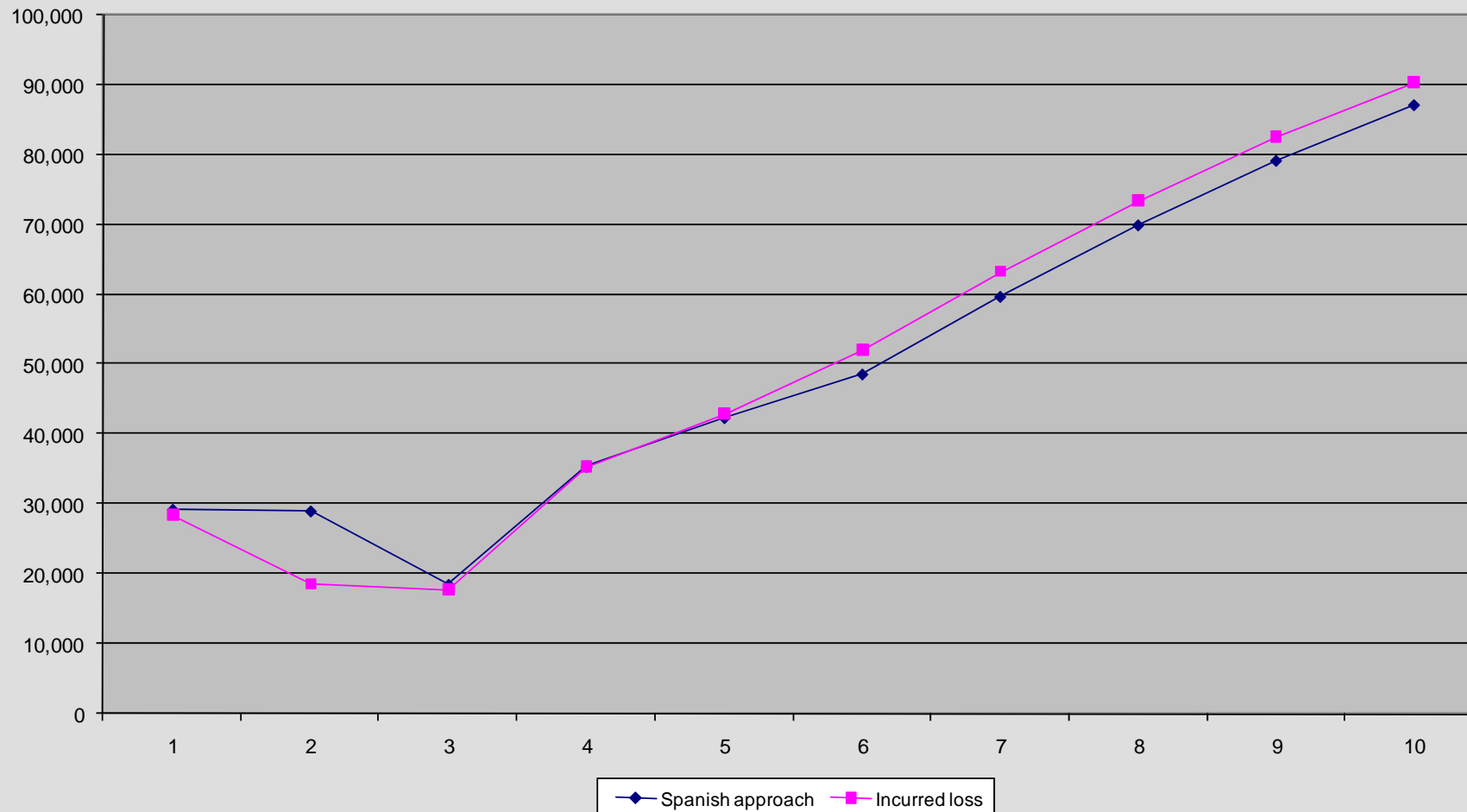
Year	Loans (Number)	Beginning Loans (CU)	Ending Loans (CU)	NPL (%)	Specific Provision				Theoretical General Prov. (CU)	Theoretical General Fund (CU)	αLoans (CU)	General Provision		(Spec.+Gen.Fund)/Loans (%)
					Specific Provision (CU)	Specific Fund (CU)	αΔLoans (CU)	βLoans (CU)				General Prov. (CU)	General Fund (CU)	
0	6,997	523,754	525,298	1.38	2,321	4,681	855	3,414	1,948	12,699	9,455	1,068	11,819	3.14
1	7,988	560,072	563,040	3.41	5,100	8,288	679	3,660	-761	11,058	10,135	-761	11,058	3.44
2	8,776	564,982	571,967	7.48	14,234	19,453	161	3,718	-10,355	703	10,295	-10,355	703	3.52
3	9,761	579,317	587,876	5.83	16,005	27,684	286	3,821	-11,898	-11,195	10,582	-703	0	4.71
4	11,246	630,925	640,778	4.87	6,122	24,250	952	4,165	-1,005	-1,005	11,534	0	0	3.78
5	12,677	665,250	688,884	3.91	4,789	24,693	866	4,478	555	555	12,400	555	555	3.67
6	14,111	691,254	738,145	3.00	2,216	19,354	887	4,798	3,469	4,023	13,287	3,469	4,023	3.17
7	14,907	760,334	801,581	1.68	2,727	10,076	1,142	5,210	3,625	7,648	14,428	3,625	7,648	2.21
8	15,704	822,690	863,723	1.48	3,209	9,075	1,119	5,614	3,524	11,172	15,547	3,524	11,172	2.34
9	16,535	877,917	919,385	1.32	3,554	7,953	1,002	5,976	3,424	14,597	16,549	3,424	14,597	2.45
10	17,364	925,589	968,499	1.39	3,895	8,992	884	6,295	3,284	17,881	17,433	3,284	17,881	2.77

- The general fund increases until year 0 but, starting in year 1, declines. The sudden and deep increase in specific provisions (i.e. a speed up of individually identified losses) explains the sharp decline in the general fund. The general fund starts to recover in year 6 when the recession is well behind and the portfolio growth resumes.**

The Cycle Model



Interest, net of loan losses, set one



Conclusions



- **The Spanish system allows for an earlier detection of credit losses building up in the banks' loan portfolio**
- **It is a transparent system (rule-based, formula based, with disclosures) and provides information that is comparable across banks**
- **Early warning system for financial statement users**
 - **it signals the build up of credit risk and credit losses**
 - **It delivers the proper information to investors to gauge the true financial condition of the firm**
- **The proper recognition of the increase in credit risk/collective incurred losses since the inception of the dynamic provision, has been very useful for Spanish banks under the current crisis...**
- **... although it is not a silver bullet**



ANNEX

Specific mechanics



- The former formula is a simplified way of presenting things
- In fact, α and β are assigned according to the six risk buckets or six homogeneous risk categories
- The parameter vectors are:
 - (0%; 0.6%; 1.5%; 1.8%; 2%; 2.5%) for α
 - (0%; 0.11%; 0.44%; 0.65%; 1.1% y 1.64%) for β
- Six homogeneous groups:
 1. zero risk (cash, public sector debt)
 2. home mortgages with LTV below 80%, corporates with rating A or above
 3. loans with real guarantees and home mortgages with LTV above 80%
 4. rest of loans, including corporates and SMEs
 5. consumer durables financing
 6. credit cards and overdrafts

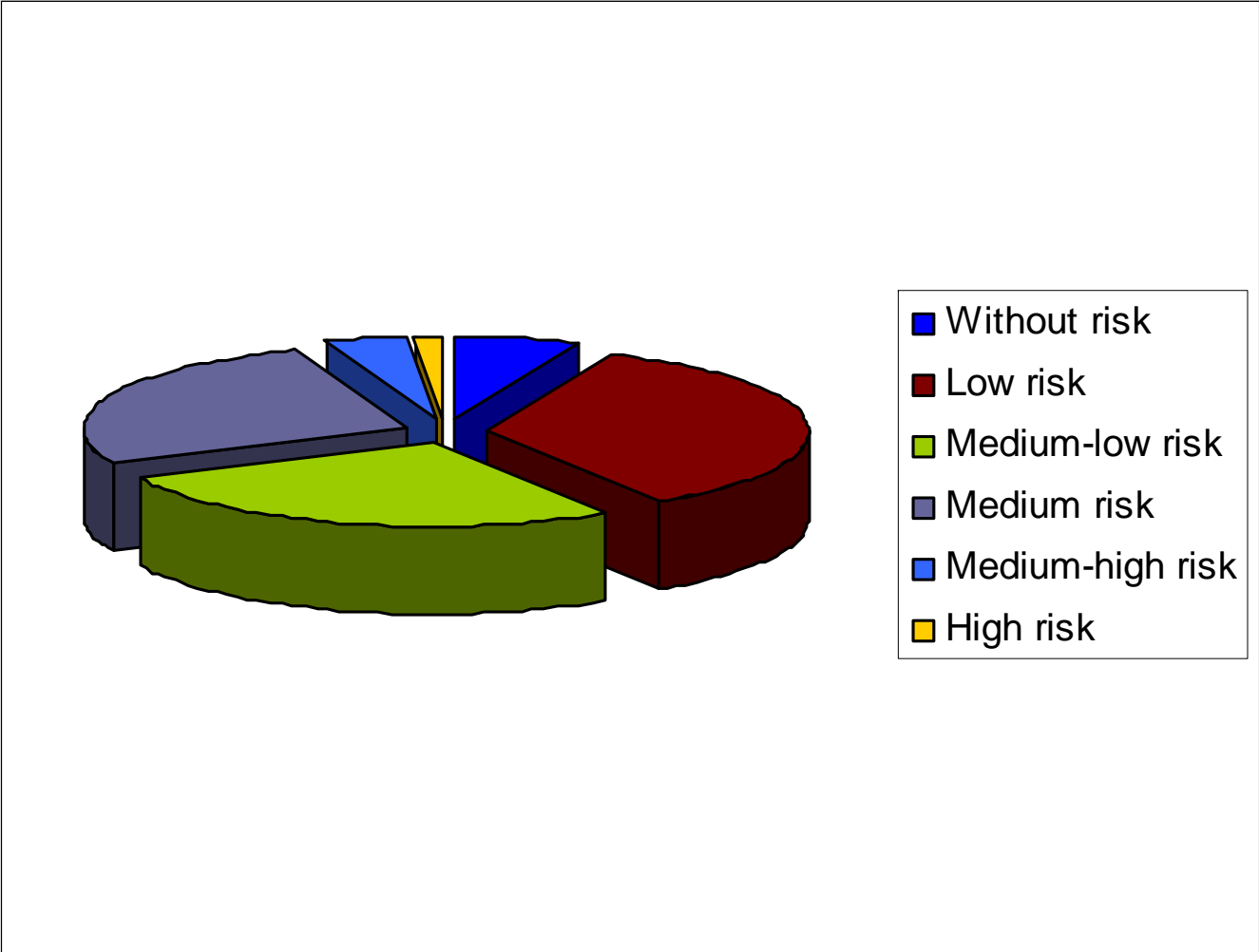
Specific mechanism

- The formula of the new general provision is:

$$\dot{gen}_t = \sum_{i=1}^6 \alpha_i \Delta C_{it} + \sum_{i=1}^6 \left(\beta_i - \frac{\dot{espe}_{it}}{C_{it}} \right) C_{it} = \sum_{i=1}^6 \alpha_i \Delta C_{it} + \left(\sum_{i=1}^6 \beta_i C_{it} - \dot{espe}_t \right)$$

- There is no need to know which is the exact position in the cycle. That is endogenously provided by current specific provisions that, by definition are closely tied to non-performing loans, a variable closely linked to the lending and the business cycle
- It is easy to look backwards and establish the length of the last lending cycle and, therefore, the average of the cycle specific provision (the β)

Credit across the six risk categories. Dec. 2004



Fact sheet (1)



- Total loan loss provisions at a consolidated level at the end of 2007 were 1.33% of total consolidated assets
- The ratio of bank capital and those total assets was 5.78%
 - Spanish banks did not have conduits or SIVs, thus, the amount of off-balance sheet assets was very limited
- At the end of 2007, Spanish banks at a consolidated level had 1.20% of general provisions over total credit granted
- The ratio of general provisions to credit subject to positive dynamic provisioning requirements was 1.44% at the end of 2007 at a consolidated level
- General provisions were 73.2% of total loan loss provisions at that time
- Using June-08 data, for those banks applying IRB methods, total loan loss provisions exceeded expected losses by 57.8%, while the excess of general provisions was 22.36%

Fact sheet (2)



- **The ratio of general provisions over total credit subject to the dynamic provision at the end of 2007 for individual balance sheets was 1.22%**
- **If we exclude those exposures with 0% weighting, the coverage ratio climbs to 1.59%**
- **For non-consolidated data in Spain, the generic provisions were 78.9% of total provisions at the end of 2007**
- **Parameters imply that for a new (traditional) mortgage (LTV up to 80%), the bank has to set aside 0.71% of its amount as a general provision that, assuming a 15% LGD, means that the effective coverage raised is up to a non-performing loan ratio of close to 4.75%, which compares with 3.85% NPL ratio for mortgages at the peak of the last recession in 1993, while the LGD was around 0%**

Recent developments



- **G20 Leaders' Statement at the London Summit in April 2009 calls for**
 - “accounting standard setters to work urgently with supervisors and regulators to improve standards on valuation and provisioning”
- **Turner Review**
 - a non-distributable Economic Cycle Reserve...
 - ... that should appear somewhere in the P&L
- **Others (OCC) argue for more judgment to be used**
 - **By firms as well as by auditors**
- **Provisions based on expected losses is another possibility being discussed**