“Standardized strategy assessment as a contribution to banks' corporate ratings”

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Standardized strategy assessment as a contribution to banks' corporate ratings

Abstract

The assessment of strategic opportunities and threats has been a key element of corporate ratings to assess companies for their current and in particular future creditworthiness since the enforcement of the new capital regulations for issuing loans in Europe (Basel II). The existing, often inaccurate statement of strategic criteria which is in strong contrast to the high requirements for standardization in rating models is particularly problematic when considering these strategic aspects. Although a wide range of models already exist to analyze the current financial, profit and liquidity situation, they frequently only reveal the consequences of potential strategies. In contrast, models that are better suited to assessing key strategic issues are often inadequately applied as effective approaches are lacking. It is essential to firstly identify and systemize the most important information before developing a suitable framework for assessing the strategy. Then this information must be made assessable in a standardized form. Our contribution is a framework for the strategic analysis of the corporate environment that includes internal strengths as well as external opportunities and threats in a simple, standardized way. The resulting 17 strategic indicators are integrated into a structure equation model that is used to empirically test the interaction postulated in advance between the indicators and strategy assessment. The resulting model not only explains just under 50% of the strategic positioning rating by the companies' own managed but also provides statements on the importance and interaction of various strategic influencing factors.

Keywords: rating, Basel II, strategy assessment, structure equation models.
JEL Classification: L22, M21, C51.Introduction

Introduction

As a result of the requirements in the new capital regulations for issuing loans in Europe (Basel II), banks can not only assess companies' creditworthiness when issuing loans more frequently but also more comprehensively. Banks are also obliged to consider strategic information and assess strategic positioning. It is however unclear which key factors must be observed in such a strategy assessment and above all how these can be collected in a standardized manner that is as efficient as possible. Most banks have traditionally focused on financial analyses based on indicators and past data when rating a company as these can be produced in a mainly standardized manner from balance sheets, profit and loss and cash flow statements. There are already a range of models to analyze the current financial, profit and liquidity situation. However, these usually only measure the consequences of (potentially incorrect) strategies whereas models that are better suited to assessing key strategic issues are only inadequately applied for reasons of high complexity. An appropriate collection of qualitative strategic information beyond the balance sheet is hardly ever undertaken as the structured basis for the initial data as is the case with financial indicators is lacking. This article contributes towards a solution to this key challenge for practical rating. The basis for the models developed in this paper is the strategic analysis of the company including the external opportunities and threats as well as the internal strengths. The model is verified using empirical data with the aid of a structure equation model.

The paper is organized as follows: first, we give a brief summary of the literature concerning the key publications relating to corporate rating, strategic analyses and empirical work on similar issues. Then three theses that form the basis for the empirical study are derived from the literature, followed by a description of the principles of structure equation models. Here the focus is on explaining the key elements that are essential to understand the results. The empirical results and a discussion of the subsequent conclusions complete the article.

1. Literature summary and derivation of theses

1.1. Overview of relevant literature and empirical studies. Professional rating models are already over 100 years old and the Standard and Poors and Moody rating agencies are considered the most important and established ones around the world. As a result their models are frequently presented as reference models in the literature. Very detailed descriptions of the rating models are found, in particular in a variety of American authors such as Sinclair (2005), Ong (2002), Servigny and Renault (2004) and Levich et al. (2002)[1]. The principal rating methodology of banks is discussed by such authors as Büschgen and Everling (1996) as well as, in particular, Nolte (2003)[2]. As a result of the defective or completely lacking consideration of strategic influencing factors described there, the

[1] Sinclair (2005), Ong (2002), Servigny and Renault (2004) as well as Levich et al. (2002).
[2] Büschgen and Everling (1996) and Nolte (2003).

acute need for banks to act on this issue is shown in connection with the new requirements of Basel II. This is emphasized by the words of the German KfW management board spokesman Hans Reich, "*We have to drastically reduce the cost of processing loans. This is about more than standardization*"[1]. If one, however, wants to consider strategic factors in a rating model it is essential to fall back on the two main analysis foci of strategic management: external and internal analyses. Whereas external analysis – also called the Market-Based View (MBV) – has its roots as early as 1939 in classical industrial economics by Mason (1939) and Bain (1956), internal analysis – also called the Resource-Based-View (RBV) – originates in work by Penrose (1959) in "The theory of the growth of the firm"[2]. In the 1970s the external approach by Porter, which is characterized mainly by its macroeconomic characteristics, was further developed into the pragmatic "Five Forces" approach as a result of his expertise on strategic management and held a dominant position in strategic management economic theory in the 1980s and 1990s[3]. In contrast, Penrose's work was ignored for a long period of time and only picked up on by Wernerfelt in his "A Resource Based View of a Firm" article which was published in 1984 and a little later in a publication by Barney (1986)[4]. Even so until 1990 internal analysis was almost exclusively only known in academic circles. This changed with the much accepted article "The core competencies of the cooperation" by Prahalad and Hamel, who made the internal analysis approach popular in practice with the core competence concept[5]. Only certain resources and abilities that have particular characteristics are considered to be core competences. Other authors such as Grant (1991), Peteraf (1993) and Teece et al. (1997) picked up on this approach on determining core competences and developed it further[6]. Since that time the relationship between external and internal analyses has been controversially discussed in the literature. The basic question in this regard is whether the two approaches are complementary or competing. For example, zu Knyphausen (1993) refers to parallels between the two models and Ossadnik (2000) also talks about complementary concepts[7]. Other authors, such as Freiling (2001), emphasize the need for strict separation[8]. The first important empirical studies on this subject were undertaken in 1985 by Schmalensee[9]. In this study the industrial segment was identified as the most important source of profitability and company-specific factors were only assigned a subordinate role. However, this could not explain around 80% of profit variance meaning that concrete conclusions were not possible from this study. Six years later Rumelt tried to resolve these ambiguities by adding other company-specific factors. It is therefore not surprising that this study attributes profitability differences to the different characteristics of the companies and gives effects from the industry segment a much lower importance. Other empirical studies built on Rumelt's work in subsequent years[10]. The analysis by McGahn and Porter can explain around 36% of corporate performance variance by internal factors (external factors around 18%). A study by Hawawini et al. (2003) came to a similar conclusion. The following three points can be stated as the overall results of the various studies and these form the basis for the theses in the following chapter:

1. No external factor on its own (such as market share or industry concentration) can satisfactorily explain the varying corporate success.
2. Both internal and external effects are important to explain corporate success.
3. The relative importance of the external and internal analyses varies heavily from study to study.

Despite the varied literature on each individual subject relating to corporate rating and success factors for strategic management, no single approach is found that produces these results in a systematic manner that meets the requirements of a practical assessment model.

1.2. Deriving hypotheses as the basis for a strategic assessment model. The starting point for developing a standardized strategy assessment model based on a few key factors is to identify the key factors and to show that medium level of variance can explain the rating of the overall strategic position by these indicators. This results in the first thesis for the model that represents a kind of basic requirement for the rest of the study:

[1] Financial Times Deutschland (2006), Issue dated 18th May.
[2] Mason (1939), Bain (1956) and Penrose (1959).
[3] From a rather macroeconomic approach that viewed in particular allocation efficiency throughout the industry, Porter's model developed an instrument to analyze the individual company. Porter in particular extended the SCP approach by permitting the results to feedback to market behavior.
[4] Wernerfelt (1984), pp. 171-180 and Barney (1986).
[5] Prahalad/Hamel (1990), pp. 79-91.
[6] Grant (1991), pp. 114-135, Peteraf (1993), pp.179-191 and Teece et al. (1997).
[7] Ossadnik (2000), zu Knyphausen (1993).
[8] Freiling (2001), p. 64.
[9] Schmalensee (1985), pp. 341-351. Studies on the isolated connection between external and company-specific factors and profitability existed much earlier, e.g., Baumol (1967), pp. 547-578 for company-specific factors. Shepherd can explain 55% of the differences in return on equity with his model that includes concentration, size, competitive intensity and industrial growth. Shepherd (1972), pp. 25-37. This refers to comparative studies that differentiate between internal and external factors.
[10] These include in particular works by Roquebert et al. (1996), pp. 653-664, Brush et al. (1999), p. 519-547, Bowman/Helfat (2001), pp. 1-23 and Ruefli/Wiggins (2003), p. 861-879.

T1: There are a few standardized factors that explain a large share of the rating of companies' overall strategic position.

As seen in other empirical studies, neither the external factors nor the internal factors alone can explain the overall strategic position. The results lead one to the conclusion that an effective strategy assessment model is only possible by appropriately combining the two analyses. This leads to the second thesis:

T2: An adequate number of external and internal factors must be included and combined appropriately.

If one includes both analysis methods, however, the relationship between the external and internal factors must be explained. Fixed weighting factors are less helpful as these do not consider company specific issues. On the other hand, the weighting factors cannot be differentiated individually for each company as this contradicts the necessary standardization.

2. Empirical study and testing

2.1. Structure of the data and analysis methodology. The survey was implemented in the period from January 2006 to March 2007. This relatively long period of time was necessary as potential contacts could only be taken from senior management in the relevant companies. The method selected for acquiring companies resulted in a basically acceptable sample size of n = .56 companies[1]. The results are based on the self-assessment of the companies' management. The composition of the sample by company size and industry segment is shown in Table 1.

Table 1. Sample by number of employees and industry segment

Company size (in 00s of employees)	Percentage of sample	Industry	Percentage of sample
< 1	13%	Mechanical engineering/tools	16%
1-10	25%	Consultancy	15%
		IT/telecommunications and automotive suppliers	13% each (sum: 26%)
10-100	20%	General services	9%
100-500	32%	Construction	7%
> 500	10%	Electrical industry, automotive OEM, financial services, consumer goods, energy/raw material, chemicals	< 5% each (sum: 27%)

The empirical data are now analyzed and the theses investigated on the basis of structure equation models. Structure equation models have been well received in empirical studies since the work of Wold (1966) and Jöreskog (1973)[2]. The motivation for developing structure equation models was the limitation of existing regression based approaches with regard to the need for simple model structures[3], and the assumption that all variables within the model can be directly observed[4] and measured without error. In order to set up a structure equation model, firstly the ex-ante assumed variables that are based on a hypothesis system derived from the theory are shown graphically and then resolved analytically. Figure 1 shows such a system as an example. As a matter of principle a difference is made between the observable indicators and the non observable – "latent" – variables. The hypothesis system may principally contain both hypotheses to explain non observable variables through observable facts and also hypotheses on assumed interactions between unobservable variables. Here a difference is made between indicators that are formative (that affect the latent variables) and reflective (are influenced by the latent variables) as well as exogenous latent variables (influence the endogenous latent variables) and endogenous latent variables (are influenced by the exogenous latent variables). The following Figure 1 shows this connection graphically using arrows and thus the basic composition of structure equation models. In addition to the direct effect, error terms must be considered for the reflective indicators and endogenous latent variables as it is not possible to include all possible influences.

The hypotheses can be tested with the aid of structure equation models in two different ways: a covariance and a variance-based solution approach whereby covariance analysis has dominated in the scientific literature to date[5]. Less widely used but equally suitable is the Partial Least Squares procedure by Wold, abbreviated to PLS[6]. Comparative studies show that both approaches lead to similar results[7]. A mathematical and model-theoretical description of the method is found in particular in Mathes (1993). The method has been used in particular in work by Henseler (2006) and Ringle (2004)[8]. The following table summarizes the key differences between the solution methods.

[1] For comparison, the study by Fornell et al. (1990) had a sample size of *n=67*, the analysis by Johannson/Yip (1994) had a sample size of *n=36* and the work by Cool et al. (1989) had a sample size of 21.

[2] Cf. Wold (1966), Jöreskog (1973). Structure equation models have seen increased dissemination in recent years especially when it comes to marketing.

[3] "Simple model structures" simply refers to the case of up to two versus more than two dependent or several dependent variables.

[4] McDonald defines an observable variable as a variable whose value can be collected in empirical experiments in the real world. McDonald (1985), p. 239.

[5] For a good inventory, cf. Homburg/Baumgartner (1995), pp. 1091-1108. This dominance is above all in the support of this approach by such computer programs as AMOS, LISREL or EQS, cf. Homburg/Hildebrandt (1998), p. 20. As LISREL is by far the most widely used program, it is frequently used in the literature as a synonym for covariance analysis. Cf. Ringle (2004), p. 11. According to a study Backhaus/Büschken (1998), p. 165 the shares of the causal-analytical procedure are shown as follows: 81% (LISREL), 14% (PLS) and 5% (EQS).

[6] Wold (1980), pp. 47-74, or also Wold (1982), pp. 1-54.

[7] Herrmann et al. (2006), p. 41.

[8] Mathes (1993), Henseler (2006), Ringle (2004).

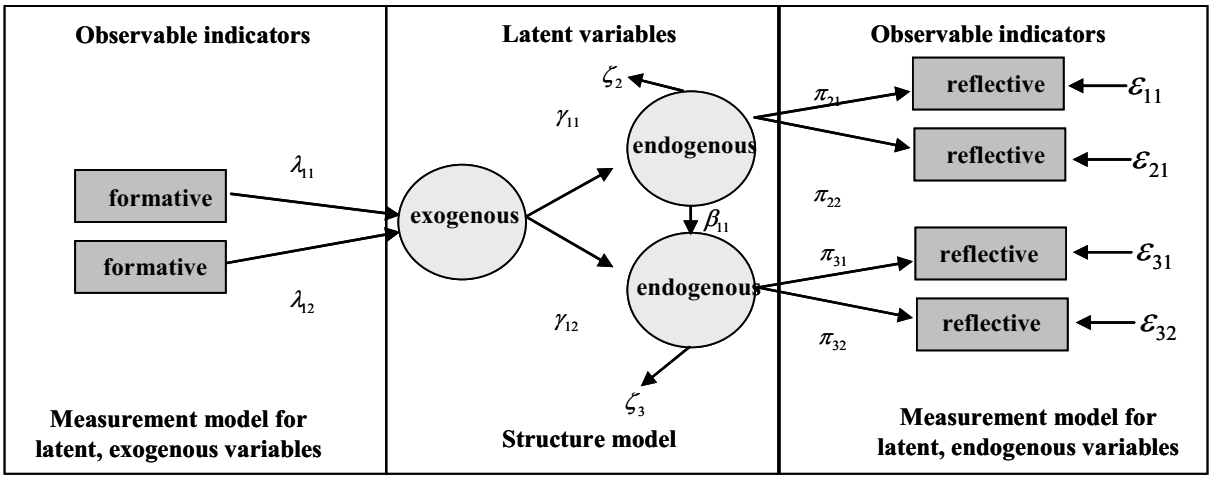

Fig. 1. Structure of structure equation model

In order to decide which solution procedure is suitable for each empirical study, the "sample size" and "distribution assumption" criteria are frequently used. On the basis of these two criteria we decide to use the PLS approach because our sample of 56 companies is too small for the LISREL approach, and because the Kolmogorov Smirnov test reveals significant deviations from a normal distribution.

Table 2. Comparison of PLS and LISREL approaches

Features	PLS approach	LISREL approach
Method used	Variance based	Covariance based
Sample size	Small samples often adequate depending on largest indicator number per latent variable	Model dependent but generally larger than 200
Distribution assumptions	No explicit distribution required	Multi-normal distribution
Assessor consistency	Consistent if the number of cases and indicators are high	Consistent
Meaningless values	Can not occur	Can occur
Applicable test criteria	Only partial rating criteria with regard to ability to predict	Global rating criteria and significance tests

2.2. Approach for testing the theses and depicting the results. The structure equation model to be tested can be described as follows. The formative indicators of the latent exogenous variable "rating of the external positioning" result from the comparison of opportunities and threats, which are for the most part developed from Porter's Five Forces. The formative indicators 9 to 13 determine the latent variable "management rating of internal positioning" with reference to the models of Grant and Barney through the assessment of internal strengths. Both exogenous latent variables show the endogenous latent variable "management rating of overall strategic positioning" which in turn is operationalized via the reflective indicators 14 to 17. These indicators refer to the assessment of market attractiveness and competitive positioning in the standard GE portfolio model.

Each questionnaire contained a company-specific assessment of all 17 indicators on a scale of -3 to +3. Here the following assessments refer in particular to the influence of formative indicators, exogenous latent variables and the relation of latent variables to each other. The results of this are presented using the theses postulated and the resulting hypotheses required to study them.

T1: The rating of the overall strategic position can be significantly explained with a few, standardized factors.

The following null hypothesis is assumed to test this thesis:

H_0 = *The path coefficients of the formative indicators are less than or equal to zero*

against H_1 = *The path coefficients of the formative indicators are significant positive.*

As calculation method we use the so called "bootstrapping procedure"[1]. This is a non-parametric method[2] in the sense that estimation and testing of path coefficients do not require any distribution

[1] In addition to bootstrapping it is possible to use the so called jackknifing procedure. Bootstrapping was developed by Efron and Tibshirani around 25 years after jackknifing. Cf. Efron/Tibshirani (1993). Jackknifing and bootstrapping are differentiated by a fixed number of cases to be suppressed as per a stipulated scheme for jackknifing whereas in bootstrapping the sub sample is estimated by a number of randomly selected cases. Therefore jackknifing takes up less time but adversely affects the quality of the result. Cf. Hahn (2002), p. 108. Today, bootstrapping is usually preferred to jackknifing due to lower standard errors. Cf. Riemenschneider (2006), p. 261.

[2] In the literature the terms parameter estimating procedure and model based procedures summarize those methods that estimate certain parameters of distributions such as averages, variances and covariances using an incomplete data matrix. Most procedures are either based on the maximum likelihood theory or on Bayes Theory. Cf. Cramme (2005), p. 145f.

assumptions. The quotients from the path coefficients from the original model and the standard deviations calculated using bootstrapping approximately represent student t-quantiles, whereby a t-test is used to set the relevant significance of the estimated result and therefore the likelihood of error. The p-value states how likely the counter-hypothesis is to be rejected incorrectly. We define p-values of 1% as "highly significant", 5% as "significant" and 10% as "simply significant".

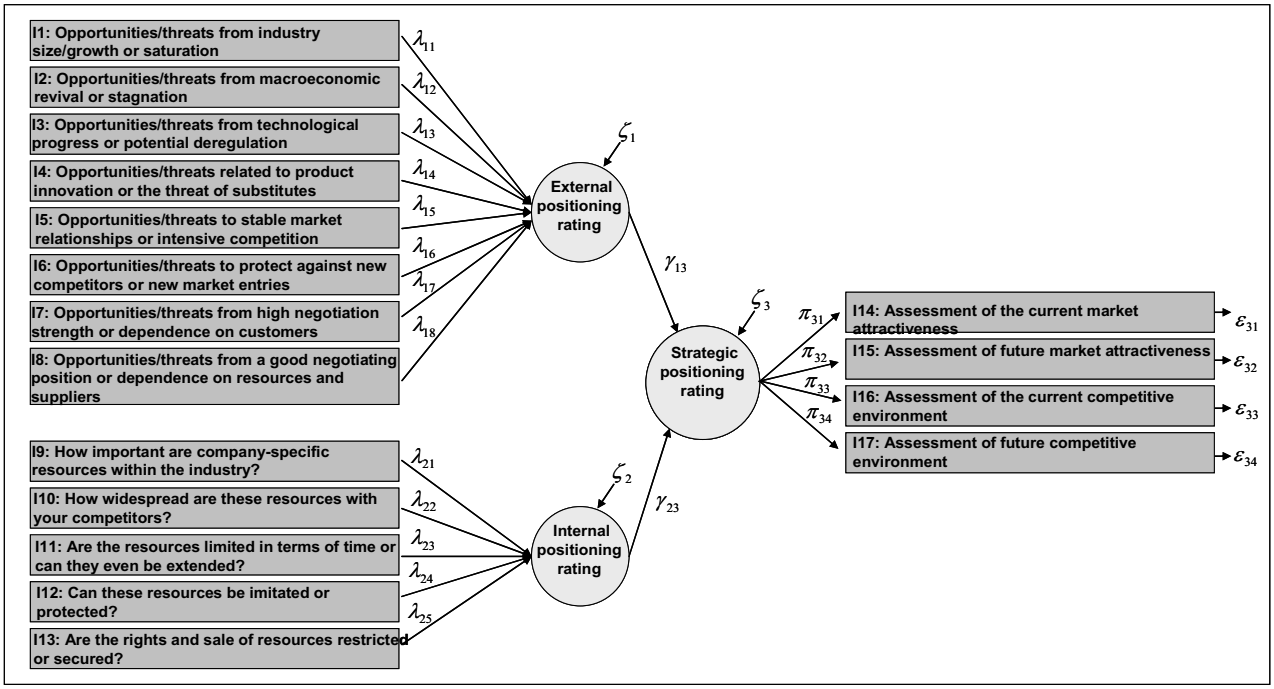

Fig. 2. Structure equation model to analyze the empirical data

Table 3. Results of the formative measurement models

Flag	Path coefficient	P-value	Significance
I1: Opportunities/threats from industry size/growth or saturation	0.37	0.001	Highly significant
I2: Opportunities/threats from macroeconomic revival or stagnation	0.06	0.325	Not significant
I3: Opportunities/threats from technological progress or potential deregulation	0.26	0.049	Significant
I4: Opportunities/threats related to product innovation or the threat of substitutes	0.19	0.067	Simply significant
I5: Opportunities/threats to stable market relationships or intensive competition	0.07	0.316	Not significant
I6: Opportunities/threats to protect against new competitors or new market entries	0.07	0.238	Not significant
I7: Opportunities/threats from high negotiation strength or dependence on customers	0.42	0.000	Highly significant
I8: Opportunities/threats from a good negotiating position or dependence on resources and suppliers	0.14	0.201	Not significant
I9: How important are company-specific resources within the industry?	0.57	0.014	Significant
I10: How widespread are these resources with your competitors?	0.30	0.006	Highly significant
I11: Are the resources limited in terms of time or can they even be extended?	0.76	0.001	Highly significant
I12: Can these resources be imitated or protected?	-0.30	0.030	Significant
I13: Are the rights and sale of resources restricted or secured?	0.15	0.069	Simply significant

The results from Table 3 show that all indicators except one have a significantly positive path coefficient. The selected indicators are therefore well suited for standardized measurement of the relevant strategic positioning[1]. In addition, the level of the path coefficients enables statements to be made on the importance of the indicators as these can be interpreted like the β-factors of normal, linear regression. The results are shown in Table 3.

The significance and therefore the quality of the model can be assessed using the declared variance of the "management rating of the overall strategic positioning" endogenous latent variable. A substantial part of the total variance (46.2%) is explained by our model. Overall, in connection with the almost exclusively positively and mostly significant path

[1] The study of the results for their validity and reliability using the envisaged rating criteria (cf. Ringle, 2004 etc.) confirms the model's significance. For example, multi-collinearity in the formative measuring model and others can be excluded.

coefficients of indicators, thesis T1 is confirmed. It is therefore possible to undertake an appropriate assessment of the strategic positioning with a few standardized factors. The superior importance of the factors is implemented using the following thesis.

T2: Both external and internal factors must be included in a strategy assessment.

The following null hypothesis is assumed to test this thesis:

H_0 = *The path coefficients of the latent exogenous variables are less than or equal to zero*

against H_1 = *The path coefficients of the latent exogenous variables are significantly positive.*

Table 4 states the results of the hypotheses test.

Table 4. Results from the structure model

Exogenous latent variable	Path coefficient	P-value	Significance
Rating of external positioning	0.489	0.000	Highest significance
Rating of internal positioning	0.327	0.000	Highest significance

Obviously both the external and internal positioning must be included in a strategy assessment as both path coefficients are clear and significantly higher than zero[1]. This is not initially surprising, but in most practical settings assessments refer to one of the two aspects only. Whereas the banks' rating models hardly ever include internal factors such as the ability to sustain the value of core competences, entrepreneurs themselves tend to direct their focus clearly towards internal matters. In contrast, we find that both aspects are of major importance and should be assessed together.

Conclusion

The empirical results from the structure equation model show that a basic assessment of the strategic positioning is principally possible in a standardized manner using a few (13) indicators. In addition, the path coefficients reveal the average importance of the relevant factors at least in our sample, giving valuable hints for practical rating if applied on a larger scale. It can also be stated that both external and internal factors must be considered as both analysis foci make a significant contribution to the explanation and an appropriate assessment is only possible by combining the two. It has been shown that industry specific environmental conditions must be included in the weighting of various factors and rigid weighting factors are less likely to achieve the desired aims. By assessing the corporate heterogeneity and information asymmetry within the industry under review, such an essential differentiation can be considered in an initial step. It is therefore possible to appropriately combine the necessary standardization of the assessment factors and the necessary flexibility when aggregating these factors into a model. This results in information on fulfilling both the regulatory requirements of Basel II and the pragmatic requirements of practical use.

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