



## COMMERCIAL BANK FINANCIAL PRIORITIES ON THE LIFE CYCLE STAGES

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**Abstract.** The object of this paper is to establish the differences in the values of financial indicators depending on the life cycle stages and to identify the financial priorities for each stage. It has defined the life cycle stages of all operating Ukrainian banks in terms of annual market share growth rate, income growth rate, personnel expenses growth rate. It presents a list of indicators of the bank's financial soundness by its components: resource sustainability, liquidity, business activity, financial performance. Taxonomic indices were calculated for each of these components, with their breakdown into qualitative levels (high, average, low) using the "3 $\sigma$ " rule scaling method. The level of taxonomic indices of the components of the bank's financial soundness were related to their life cycle stages. It established financial priorities at each stage of the banks' life cycle: at the setup stage – intensive search for positions for resource allocation and maintenance of sufficient liquidity of assets; at the stage of extensive growth – improvement of the structure of resources in terms of operating assets growth and their quality maintenance; at the stage of intensive growth – profitability growth; at the stage of maturity – maintenance of the balance between liquidity and profitability; at the stage of decline – increase of business activity. The results of the study can be used in developing banks financial strategies.

**Key words:** bank, life cycle, financial priorities, resource sustainability, liquidity, business activity, financial performance, taxonomic index.

### Introduction

According to the life cycle theory, the bank, like any organization, goes through a series of stages, bringing changes in the parameters of its activities. In order to be able to prevent crises in time and to form a strategy, the bank's management should know where they are by life-cycle measure. It would be logical to assume that the main financial indicators are different for different stages of the life cycle as well, which requires different financial analytics. The stage of the life cycle of the bank translates into existence of the stage-specific problems and challenges, which governs the choice of dominants for general and financial strategies as well as the formation of financial management technologies to implement them. These problems and challenges are defined by characteristics that vary with each stage.

There is great deal of research papers dedicated to identification of the life cycle stages of the organization. Specifically, the importance of organizational and management parameters, such as management focus and style, organization structure, management formalization level highlighted in works (Lippitt and Schmidt, 1967; Greiner, 1972; Kimberly, 1980; Churchill and Lewis, 1983; Quinn and Cameron, 1983; Miller and Friesen, 1984; Smith, Mitchell and Summer, 1985; Flamholtz, 1986; Scott and Bruce, 1987; Adizes, 1988; Kazanjian, 1988; Hanks et al., 1993; Lester, Parnell and Carraher, 2003; Shirokova, 2009; Gao and Alas, 2009; Lipi, 2013; Gorshkova, Trifonov and Poplavskaya, 2014). Financial parameters of the organization's life cycle were studied by Anthony and Ramesh (1992), Koriahina (2003), Aharony, Falk and Yehuda (2006), Ivashkovskaia and Iangel' (2007), Dickinson (2008), Zhipeng and Yan (2009), Didyk (2010), Sokyrynsjka (2011), Guseva (2012), Milinchuk (2012), Matjushenko (2013), Nazarenko (2014). It should be noted, however, that there is no consensus among researchers regarding the sets of financial parameters for the life cycle stages. Thus, Anthony and Ramesh (1992), Aharony, Falk and Yehuda (2006), Zhipeng and Yan (2009) opt for such financial indicators as sales growth, change in capital expenditure, annual dividend payout ratio. Dickinson (2008) focuses on the different types of cash flows at the different stages of the life cycle, Sokyrynsjka (2011), Guseva (2012), Nazarenko (2014) trace the values and the dynamics of certain financial parameters depending on the life cycle stage, and Koriahina (2003),

Ivashkovskaia and Iangel' (2007), Didyk (2010), Milinchuk (2012), Matjushenko (2013) suggest the use of integral indices that incorporate different financial ratios.

Despite the fact that the concept of the life cycle has been sufficiently developed, the problem of identification of life cycle stages of a bank, being quite different from non-financial organizations due to the specifics of accumulation and allocation of resources, has been covered but in a few works (Shevtsova and Mandziuk, 2007; Duvalova, 2012; Glotova, 2013) of mostly theoretical nature. Mention should also be made of the lack of empirical studies into the relation of the bank's financial status to the stages of its life cycle, which is important when framing the financial strategy, which must correspond to the bank's development stage.

Existence of financial problems, relations of the level of financial soundness to the life cycle and indicators subject to special control at a certain stage were noted in works (Shirokova, 2006; Dombrovskiy and Plastun, 2009; Didyk, 2010; Sokyrynsjka, 2011). Thus, Shirokova (2006) differentiates the following financial problems at the life cycle stages: setup – insufficient financial resource endowment, insufficient cash flow; growth – growth in sales, but not in revenues; maturity – insufficient financial resource endowment. Dombrovskiy and Plastun (2009) believe that the setup stage is characterized by scarcity of working capital, low financial soundness level; the growth stage – by shortage of liquid assets, poor debt/equity ratio; the maturity stage – by stable financial situation; the decline stage – by falling revenues, negative cash flow, low profitability, poor debt/equity ratio, lack of financial resources. According to Didyk (2010) it is crucial to have control over some important indicators at certain stages of the organization's life cycle: at the setup stage these are solvency, creditworthiness indices; at the growth stage – turnover and profitability indices; at the maturity stage – solvency index; at the decline stage – all the financial indices. The work by Sokyrynsjka (2011) presents a slightly different approach: it suggests that at the setup stage primary attention should be given to funding sources formation indicators, asset composition and structure indices; at the stage of growth – to efficiency, capital structure, profitability, financial soundness indices; at the maturity stage – marginal analysis, profitability, liquidity indices; at the decline stage – costs, solvency, financial soundness indices.

As already noted, though having much in common with organizations, banks have their specific features since their core business is financial operations and there is difference in the structure of sources and areas for allocation of financial resources as compared to companies. Therefore, financial indicators as well as financial objectives at different stages of the bank's life cycle may be different from those of a company. Shevtsova and Mandziuk (2007) note that the main financial objective of the bank at the setup stage is to maintain sufficient capital, at the growth stage – to increase profitability of operations; at the maturity stage – to ensure liquidity and resource sustainability; at the decline stage – to identify crisis-generating factors and to minimize them. Duvalova (2012) believes that the setup stage is characterized by a high financial risk due to significant amounts of borrowed resources and lack of cash flow; the specifics of fast growth stage include quick achievement of the profitability threshold and shortage of resources for development; the stage of damped growth brings costs cuts, increasing share of equity in the structure of resources, reduced financial risk; the maturity stage is associated with investment risk, and the stage of decline – with high cumulative risk in a situation of slumping sales of banking services and their growing production cost. Glotova (2013) focuses only on liquidity indices of the banks when going from one stage of their life cycle to another and notes that the growth stage is characterized by sufficient level of liquidity, at the maturity stage insignificant liquidity gaps occur, and at the stage of decline there is a reduction of supply of instant and current liquidity due to funds outflow.

So, different authors lay emphasis on different financial indicators, their different values and trends depending on the stage of the life cycle, which calls for answers to the following questions:

1. Is there any relation between financial soundness of the bank and the stage of its life cycle?
2. What financial indicators have different levels on different stages of the bank's life cycle?

To this end, the object of this paper is to establish the differences in values of financial indicators depending on the life cycle stages and to identify the financial priorities for each stage.

Considering the view by researchers (Greiner, 1972; Adizes, 1988; Shevtsova and Mandziuk, 2007; Gao and Alas, 2009; Dombrovskiy and Plastun, 2009; Didyk, 2010) that the risk of crises occurrence is present in various stages of the life cycle of the organization, while the crisis phenomena are bound to affect financial soundness, hypothesis 1 was put forward as follows: There is no clear relation between general level of financial soundness of the bank and the stage of its life cycle.

Based on analyzed literature sources (Koriahina, 2003; Shirokova, 2006; Ivashkovskaia and Iangel', 2007; Shevtsova and Mandziuk, 2007; Didyk, 2010; Sokyrynsjka, 2011; Milinchuk, 2012; Duvalova, 2012; Matjushenko, 2013; Glotova, 2013; Nazarenko, 2014) hypothesis 2 was suggested as follows: the level of financial soundness indices by groups of resource sustainability, liquidity, business activity, financial performance differ depending on the stage of the bank's life cycle.

## Method

### Data Collection

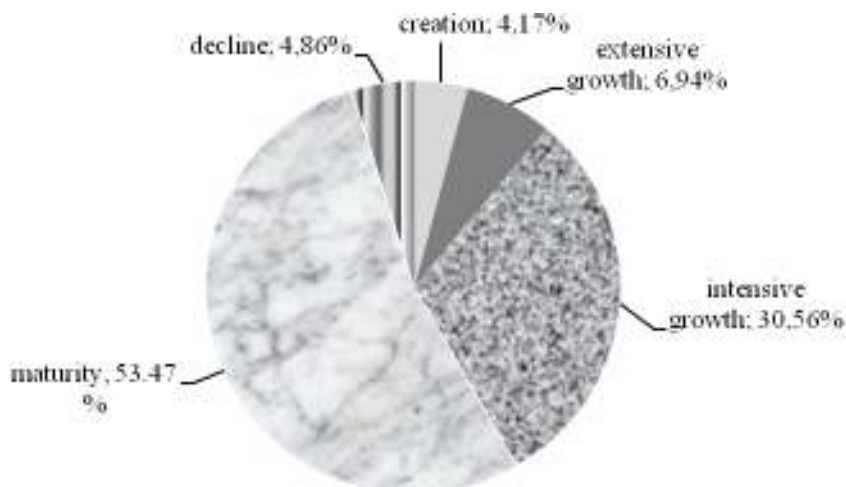
The sample subject to research was formed from all the 144 Ukrainian banks operating as of 2014. To find the connection between financial indicators and the stages of the life cycle, the banks were divided into groups according to the setup, extensive growth, intensive growth, maturity and decline stages. These stages were chosen based on the analysis of research into the life cycle theory (Lippitt and Schmidt, 1967; Greiner, 1972; Kimberly, 1980; Churchill and Lewis, 1983; Quinn and Cameron, 1983; Miller and Friesen, 1984; Smith, Mitchell and Summer, 1985; Flamholtz, 1986; Scott and Bruce, 1987; Adizes, 1988; Kazanjian, 1988; Anthony and Ramesh, 1992; Hanks et al., 1993; Lester, Parnell and Carraher, 2003; Koriahina, 2003; Aharony, Falk and Yehuda, 2006; Ivashkovskaia and Iangel', 2007; Shevtsova and Mandziuk, 2007; Dickinson, 2008; Zhipeng and Yan, 2009; Shirokova, 2009; Gao and Alas, 2009; Didyk, 2010; Sokyrynsjka, 2011; Guseva, 2012; Milinchuk, 2012; Duvalova, 2012; Lipi, 2013; Matjushenko, 2013; Glotova, 2013; Gorshkova, Trifonov and Poplavskaya, 2014; Nazarenko, 2014), which revealed a wide array of views by different authors, with the number of stages varying from 2 to 11 depending on the level of detail adopted by different authors. A detailed analysis of the content of separate stages prompted a conclusion that in most cases researchers refer to one and the same stages using different terms, while in general terms all the stages can be divided as follows: setup (creation), growth, stability (maturity, success) and decline (downturn). Considering the results of the analysis of operation of banks, extensive and intensive growth stages were singled out within the growth stage, since each of these stages, though having a common trend for growth, have different drivers behind it: income and expenditure growth or expansion of the market share.

The life cycle stages of Ukrainian banks were defined based on annual market share growth rate, income growth rate, and personnel expenses growth rate. These indicators were selected because they, firstly, take into account the specifics of the bank as a financial institution, its business and market activity, the financial dimension of the personnel management policy and the ability to generate revenue; secondly, reflect trends of the bank's development; thirdly, ensure avoidance of subjective judgments inherent in qualitative indicators; fourthly, the information needed for their calculation is readily available. Ukrainian banks were grouped by these indices according to the life cycle stages using the cluster analysis method (Fig. 1). As the diagram shows, most Ukrainian banks were at the maturity stage, where in an attempt to capitalize on their sustained image pursued balanced policies aimed at stabilization of the market share and liquidity parameters. Also a considerable part of the banks was at the stage of intensive growth owing to a quite substantial market share growth, with the average growth rate reaching 128.16%.

### Indices

In order to relate the levels financial soundness indices to the banks' life cycle stages we formed a set of indicators that characterize resource stability, liquidity, business activity, financial performance based on existing approaches (Carson and Ingves, 2003; Demirguc-Kunt, Detragiache and Tressel, 2006; Kovalenko and Krukhmal, 2007; Dziubliuk and Mykhailiuk, 2009; Vasylieva and Zarutska, 2013). The group of resource sustainability included: reliability factor, ratio of equity participation in the formation of assets, equity security factor, financial leverage, regulatory capital solvency (adequacy) ratio, overall capital adequacy, borrowing ratio, share of interbank credits in liabilities, share of deposits in liabilities, share of borrowed funds usage and share of borrowed funds used for credit investments. Liquidity indices are represented by quick liquidity ratio, current liquidity ratio, overall liquidity ratio, highly liquid/working assets ratio. The group of business activity indices is comprised by credit activity ratio, working assets ratio, level of assets insurance by reserves, overdue loans ratio, share of retail loans in the assets, share of interbank credits in the assets. Financial performance is defined by return on assets, return on equity, return on assets, net interest margin, interest spread. Since it is hardly possible to evaluate the level of financial soundness of the banks due to the multitude of the indicators, they were combined to form integral indices using the taxonomic method described by Pliuta (1980) and to calculate geometric mean of taxonomic indices. The taxonomic

method was chosen because it produces a complex evaluation of banks' performance, which allows ranking best of them according to a number of indices as well as eliminates implicit importance of parameters due to different variation.



**Fig. 1** Distribution of the studied banks by life cycle stages, %

### Scales

In order to correlate values of taxonomic indices of resource sustainability, liquidity, financial performance and the overall integral index of financial soundness we defined the ranges of their values and established their levels (high, average, low). The bank's financial soundness indices are metric, therefore a metric scale was selected for their measurement, and specifically – the interval scale. The scale was built using the interval scaling method, which principle is about division of a given segment of values into a certain number of equal parts or parts bearing a numerical relation to each other.

The number of intervals was selected to be 3 according to the integral indices levels (high, average, low). To build the scale the  $3\sigma$  rule was used, under which 97.7-97.8% of all values of the attribute provided its normal distribution lay within the range plus/minus three mean-square sample errors of its average value.

To check the values for conformity with the normal law of distribution and significance of asymmetry, if any, we calculated the main parameters of distribution, and namely: arithmetic mean, mean-square deviation, mode, median, relative asymmetry index, asymmetry ratio (Table 1).

**Table 1**

Parameters of distribution of financial soundness indices of Ukrainian banks

Index	Arithmetic mean	Median	Mode	Mean square deviation	Relative asymmetry index	Asymmetry ratio
Taxonomic recourse sustainability index	0.357	0.365	0.370	0.086	-1.181	-0.141
Taxonomic liquidity index	0.845	0.887	0.910	0.415	-3.096	-0.444
Taxonomic business activity index	0.451	0.464	0.469	0.108	-0.664	-0.168
Taxonomic financial performance index	0.247	0.238	0.233	0.072	1.592	0.199
Overall integral index of financial soundness	0.419	0.435	0.444	0.075	-2.087	-0.339

As is seen from the results of calculation, none of the financial soundness indices is distributed symmetrically as in the case of symmetrical distribution of the values of the mode the median and the average must be the same. The relative asymmetry index measures the side of the asymmetry. If the relative asymmetry index is positive, the asymmetry is right-sided, if it is negative than it is left-sided. When the distribution is symmetric, the relative asymmetry index is zero (Bashina et al., 2003).

Data in Table 1 suggest that the taxonomic financial performance index distribution is right-sided, while that for the rest is left-sided. However, the relative asymmetry index does not allow for evaluation of the degree of asymmetry. For this purpose we calculated asymmetry ratio, which is considered to be a more precise measure of asymmetry and is more frequently used than relative asymmetry index. If the ratio is

greater than 0.5 in magnitude, the asymmetry should be considered significant, otherwise the distribution asymmetry can be disregarded (Shmoilova et al., 2004).

The obtained data suggest that the asymmetry of distribution of values of all integrated indices of financial soundness is negligible because the asymmetry index is less than 0.5 in magnitude, i.e. the asymmetry of distribution of these indices can be ignored.

## Results

Based on the above methods we defined the ranges of scale of integrated indicators of financial soundness of Ukrainian banks (Table 2).

**Table 2**

Scales and levels of integral financial soundness indices of Ukrainian banks

Integral indices of bank financial soundness	Levels of integral indices		
	low	average	high
Taxonomic recourse sustainability index	[0; 0.272]	(0.272; 0.443]	(0.443; 1]
Taxonomic liquidity index	[0; 0.698]	(0.698; 0.988]	(0.988; 1]
Taxonomic business activity index	[0; 0.343]	(0.343; 0.559]	(0.559; 1]
Taxonomic financial performance index	[0; 0.103]	(0.103; 0.392]	(0.392; 1]
Overall integral index of financial soundness	[0; 0.343]	(0.343; 0.494]	(0.494; 1]

Using the scales obtained, the levels of integral indices were matched against the life cycle stages of Ukrainian banks. The overall financial soundness index showed the following distribution: in 66.7% of the banks being at the setup stage the index was low, and in 33.3% – average. The level of financial soundness of the banks at the extensive and intensive growth stages was mainly average (80% and 85 % respectively), the low level was not characteristic of these stages. Most of the banks at the stage of maturity also had an average level of financial soundness (84.5%), at the same time, this stage also featured banks with low (9.9 %) and high (5.6 %) levels. The decline stage was represented by the banks with low (42.9%) and average (57.1 %) levels of financial soundness.

To establish financial priorities for the life cycle stages of Ukrainian banks we analyzed the share of banks that have defined levels of taxonomic indices of resource sustainability, liquidity, business activity, financial performance at each stage (Table 3).

**Table 3**

Distribution of levels of taxonomic indices of financial soundness of Ukrainian banks depending on their life cycle stages, %

Life cycle stage	Levels of taxonomic indices											
	resource sustainability			liquidity			business activity			financial performance		
	L	A	H	L	A	H	L	A	H	L	A	H
Setup	16.67	83.33	–	83.33	16.67	–	50.00	33.33	16.67	–	100	–
Extensive growth	–	70.00	30.00	–	100	–	30.00	70.00	–	–	60.00	40.00
Intensive growth	2.50	65.00	32.50	2.50	87.50	10.00	2.50	52.50	45.00	–	97.50	2.50
Maturity	2.82	64.79	32.39	1.41	98.59	–	5.63	71.83	22.54	15.49	84.51	–
Decline	14.29	85.71	–	28.57	71.43	–	85.71	14.29	–	42.86	57.14	–

Legend key: L – low level, A – average level, H – high level.

When setting financial priorities foremost attention should be paid to the low financial stability components that signal the need for their enhancement. Important also is the comparison of different components of financial soundness and identification of those underdeveloped as compared to others for each stage. Thus, at the stage of setup in 83.3% of the banks the level of liquidity is low, with 50% having a low business activity level. When compared with these components, resource sustainability and financial

performance look better (the average resource sustainability was observed in 83.33 % of the banks, while the average level of financial performance – in 100 % of the banks).

As can be seen from Table 3, problems with business activity are immanent in banks at the stage of extensive growth since its level is low in 30% of the banks, while there are no low levels among the rest of components of financial stability.

Due to efforts to increase the market share at the stage of intensive growth most of the banks (97.5%) have an average level of financial performance and this is the most problematic component of financial stability as compared to the other ones.

Financial performance goes down on the maturity stage as well (where 15.49% of the banks showed a low level and 84.51% – average). Also, there is a need to control liquidity as none of the banks has high liquidity, while the other two components of financial soundness do demonstrate high levels (32.39% of the banks demonstrate high levels of resource sustainability and 22.54% feature a high level of business activity).

High levels of components of financial soundness indices are not characteristic of the decline stage, while the most problematic one is business activity considering the fact that in 85.71% of the banks its level is low.

## Discussion

In order to reach its objective the paper suggested two hypotheses as to the absence of a coherent link between general level of bank's financial soundness and the stage of its lifecycle as well as regarding existence of relation of the levels of the resource sustainability, liquidity, business activity, financial performance indices to the stage of the bank's life cycle.

The first hypothesis was confirmed by calculation and establishing levels of qualitative values of integral indices of financial soundness of 144 Ukrainian banks and the share of banks that have respective levels at each stage of the life cycle. The results of the study showed that certain consistent patterns in the levels of financial soundness may only be found for setup and decline stages (66.7 % of banks at the setup stage were graded low, 33.3% – average, 42.9 % of banks at the decline stage scored low, 57.1% – average level). As for the other three stages, where most of the banks belong, one can note that they feature average as well as high and low levels of financial soundness.

The analysis empirically proved dependence of the financial indicators by groups of resource sustainability, liquidity, business activity, financial performance on the stages of the life cycle to confirm the second hypothesis. Based on the calculation of taxonomic indicators for the above groups using all operating Ukrainian banks as a case study and arrangement of the value ranges of these parameters into high, medium, low levels, it was found that:

1) the setup stage is characterized mainly by average resource sustainability and financial performance with low liquidity and business activity, and for these reasons the financial priorities at this stage should include an intensive search for areas of resource allocation and achievement of a sufficient liquidity of assets;

2) at the stage of extensive growth, banks have average and high levels of resource sustainability and financial performance, an average level of liquidity and medium and low levels of business activity, and in view of this such banks should focus on improvement of the structure of resources towards building up business assets and ensuring their quality;

3) at the stage of intensive growth, resource stability, liquidity and business activity are at low and high levels, while the share of banks with high performance is the greatest among all the stages of the life cycle. It is practical to develop measures to boost financial performance at this stage.

4) at the maturity stage all investigated financial indices are mostly average, at the same time there is a need to improve the internal and external factors response system to avoid sliding into the decline stage. Primary attention should be given to liquidity and financial performance, which calls for finding a balance between these components of financial soundness;

5) at the stage of decline all groups of financial soundness require monitoring. This stage is characterized by absence of banks with high levels of financial performance and the largest share of banks with low levels as compared to other stages. The average level is prevailing among the indices of resource sustainability, liquidity, financial performance, with most banks having low levels of business activity and its step-up being the main financial priority.

It would be practical to use the results of the study when shaping banks financial strategies.

The understanding of the life cycle concept allows us to identify and predict a major part of financial problems facing the bank at different stages of its development, and to apply instruments to cope with them that are most adequate to the current stage of the life cycle.

Further studies may be aimed at identification of patterns in the life cycles of banks through analysis of their activity over a long period of time as well as uncovering organizational and administrative problems at different stages of the life cycle.

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