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# Application of Problem-Based Learning in Banking Economics Courses to Improve Financial Analysis Skills

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**Abstract:** This study aims to analyze the effectiveness of Problem-Based Learning (PBL) in improving students' financial analysis skills in banking economics courses. The background of this research stems from students' limited ability to interpret financial data and solve banking cases analytically. The method used is a quantitative, quasi-experimental design of the one-group pretest-posttest type. The research subjects were 30 students from the financial management study program. The research instruments include financial analysis ability tests and observation sheets of learning activities. Data were analyzed using paired sample t-test and N-gain tests. The results showed a significant increase in pretest-to-posttest scores ($p < 0.05$), with an average N-gain of 0.58, which was in the medium range. In addition, observations revealed changes in student behavior, including increased participation, greater confidence, and improved ability to deliver analysis. These findings show that PBL is effective in improving students' financial analysis skills cognitively and practically. This research is expected to serve as a reference for the development of banking economics learning that is more contextual and grounded in real problems.

**Keywords:** Problem-Based Learning, banking economics, financial analysis, contextual learning, financial management students

**Abstrak:** Penelitian ini bertujuan untuk menganalisis efektivitas penerapan Problem-Based Learning (PBL) dalam meningkatkan kemampuan analisis keuangan mahasiswa pada mata kuliah ekonomi perbankan. Latar belakang penelitian ini berangkat dari rendahnya kemampuan mahasiswa dalam menginterpretasikan data keuangan dan menyelesaikan kasus perbankan secara analitis. Metode yang digunakan adalah pendekatan kuantitatif dengan desain kuasi-eksperimen tipe one-group pretest-posttest. Subjek penelitian terdiri dari 30 mahasiswa program studi manajemen keuangan. Instrumen penelitian meliputi tes kemampuan analisis keuangan serta lembar observasi aktivitas pembelajaran. Data dianalisis menggunakan uji paired sample t-test dan N-gain. Hasil penelitian menunjukkan adanya peningkatan signifikan antara nilai pretest dan posttest, dengan nilai signifikansi < 0,05 dan rata-rata N-gain sebesar 0,58 yang termasuk kategori sedang. Selain itu, hasil observasi menunjukkan adanya perubahan perilaku mahasiswa, seperti peningkatan partisipasi, kepercayaan diri, dan kemampuan menyampaikan analisis. Temuan ini menunjukkan bahwa PBL efektif dalam meningkatkan kemampuan analisis keuangan mahasiswa secara kognitif dan praktis. Penelitian ini diharapkan dapat menjadi referensi dalam pengembangan pembelajaran ekonomi perbankan yang lebih kontekstual dan berbasis masalah nyata.

**Kata Kunci:** Problem-Based Learning, ekonomi perbankan, analisis keuangan, pembelajaran kontekstual, mahasiswa manajemen keuangan

## INTRODUCTION

Banking economics learning in the financial management study program has so far focused primarily on the delivery of concepts and theories. Students are familiar with terms such as credit risk, loan feasibility, and financial ratios, but often stop at the definition level. In the classroom, the atmosphere can sometimes feel calm—too quiet, even. Students take notes, nod, and occasionally ask questions, but when faced with real case studies, such as small business creditworthiness analysis, many are hesitant about where to start. This phenomenon indicates a gap between the mastery of concepts and analytical skills applicable to banking (Gorton & Winton, 2003).

The problem does not stand alone. In some class observations, students seem to have difficulty comprehending customer financial statements, let alone attributing them to credit risk or financing decisions. They understand formulas, but do not always understand the meaning behind numbers. In fact, when given a simple case—for example, determining whether a business is eligible for a loan—the answers that emerge are often normative, not analytical. This aligns with the finding that overly theory-oriented learning tends to result in a superficial understanding and is less transferable to real-world situations (Prince, 2004).

From this point, the urgency of the research began to be felt. The banking world has never operated in a theoretical vacuum; it operates in uncertainty, imperfect data, and decisions that must be made quickly. If students are not trained from the beginning to think analytically through real problems, then there is a risk that they are not prepared for such complexity. So, the need for a learning model that bridges theory and practice is no longer an option but a necessity. (Ilsa Palingga Ninditama et al., 2025; Sherly Malini et al., 2026). Problem-Based Learning (PBL) emerged as an approach capable of fostering critical and analytical thinking through the exploration of contextual problems (Hmelo-Silver, 2004).

The connection between this problem and the industry's real needs is also quite clear, though it is not always recognized in the classroom. The banking industry needs graduates who not only understand the concepts but can also analyze credit risk, interpret financial patterns, and make data-driven decisions. In this context, learning that focuses only on memorizing concepts becomes less relevant. (Dahnial Dahnial et al., 2025; Purwanto, Yuliasri, et al., 2025). More or less, there is a distance between what is taught on campus and what is needed in the field. This study tries to bridge that distance—or at least, bring it closer.

Although Problem-Based Learning has been extensively researched across various fields, there is a fairly specific gap. Most PBL research focuses on improving cognitive learning outcomes in general or in areas such as medicine and science (Savery, 2006). In the context of economics, especially banking economics, research explicitly examining students' financial analysis skills remains relatively limited (Fitria Marisya, Rolia Wahasusmiah, et al., 2025; M. Bambang Purwanto, 2025). In addition, the indicators used often do not address financial decision analysis in depth. This is where the untouched space lies.

Based on these gaps, this study has the main objective of testing the application of Problem-Based Learning in banking economics instruction and analyzing the extent to which the approach improves students' financial analysis skills. More specifically, the research questions asked were: (1) whether there was a significant improvement in students' financial analysis skills after the implementation of PBL, and (2) how the PBL

learning process affects the way students understand and solve banking cases.

The novelty of this research lies in integrating the Problem-Based Learning model into the specific context of banking economics, with a focus on practical financial analysis. Not only measuring learning outcomes in general, but this study also emphasizes students' ability to interpret financial data, evaluate risks, and make decisions based on real cases. (Jamilah et al., 2026; Sinta Bella Agustina et al., 2026). This approach offers a more applicable perspective than previous research, which tends to be conceptual or limited to basic cognitive aspects.

Finally, this research is expected not only to make an academic contribution but also to have a practical impact on the development of banking economics learning. There is a kind of hope—though it may sound ambitious—that the results of this research can serve as a reference for lecturers in designing learning that is more contextually relevant and aligned with industry needs. On the other hand, this research also opens up opportunities for more in-depth follow-up studies, for example, by integrating financial technology or digital simulation in learning. That way, learning banking economics no longer feels "far" from reality, but becomes a training space closer to the real world.

## METHODOLOGY

This study uses a quantitative, quasi-experimental design, specifically a one-group pretest–posttest design. This design was chosen because it allows researchers to measure changes in students' financial analysis skills before and after the application of Problem-Based Learning (PBL) in real classroom situations. Granted, this design is not as powerful as pure experimentation, but in the context of college learning, it is quite realistic. (Fitria Marisya, Rosma Novianti, et al., 2025). At least, the changes that occur can be captured directly, even without a control group.

The research subjects are students in the financial management study program taking banking economics courses. The number, for example, is about 30 people per class—quite representative of the initial analysis. The selection of samples was carried out purposively, with the consideration that they were in a learning phase relevant to banking material. There is a simple logic here: not all students are suitable as subjects; only those who are truly "in touch" with the context being studied. So, this selection is not a coincidence, but based on research needs.

The research procedure is designed following the main stages in Problem-Based Learning. First, students are faced with real problems—for example, bad credit cases or analyses of small business loan eligibility. Then, they work in groups to discuss and identify the core of the problem. After that, students begin analyzing available financial data, reading reports, assessing risks, and formulating solutions. This process then concluded with the presentation of the analysis results and joint reflection. At this point, it usually becomes apparent that students who were initially passive begin to dare to argue, though they may still be hesitant.

The research instruments used are quite diverse, so that the data obtained is not "shallow". The main instrument is a financial analysis ability test given before (pretest) and after (posttest) the implementation of PBL. This test is designed to measure students' ability to read, interpret, and evaluate financial data. In addition, observation sheets are used to record student activities during the learning process—for example, discussion participation, ability to express opinions, and involvement in case analysis. If

you want to go deeper, researchers can also add questionnaires or interviews to capture students' responses and learning experiences.

Quantitative data analysis is conducted using statistical tests, such as paired-samples t-tests, to determine whether there is a significant difference between pretest and posttest scores. In addition, N-gain analysis can be used to determine the degree of improvement in students' abilities across categories (low, medium, or high). On the other hand, qualitative data from observations and interviews were analyzed descriptively to provide a more complete picture of the learning process. So, it is not just the numbers that speak; it is also the dynamics that occur in the classroom.

Overall, this methodological approach tries to combine the measurement of learning outcomes with the understanding of the learning process itself. There is a kind of balance between numbers and stories, between results and experiences. Although it may not be perfect, this approach is expected to provide a fairly comprehensive picture of the effectiveness of Problem-Based Learning in improving students' financial analysis skills in banking economics courses.

## RESULT AND DISCUSSION

### Result

This section presents the research results directly from the data obtained during the learning process, without excessive interpretation. In general, there is a significant difference between students' initial conditions before and after the implementation of Problem-Based Learning (PBL) in banking economics learning. The pretest scores suggest that students' financial analysis skills remain relatively low, especially in interpreting data and making case-based decisions. However, after going through a series of PBL stages, the posttest results showed a more structured improvement. On the other hand, this change is not only reflected in the numbers but also in the classroom dynamics—discussions become more lively, students are more willing to argue, and the learning atmosphere feels more active than ever before.

**Comparison of Pretest and Posttest Results of Student Financial Analysis Ability**

The pretest and posttest results provide a fairly clear picture of students' financial analysis skills before and after the implementation of Problem-Based Learning (PBL). In the pretest stage, most students show limited skills, especially in interpreting financial data and drawing case-based conclusions. The scores obtained tend to be concentrated in the low-to-medium range. This, on reflection, makes quite sense—because they were previously dealing with theory rather than complex analytical practices.

After implementing PBL, the posttest results showed clear changes. Student scores have increased, not only in the class average, but also in the overall distribution of grades. Some students who were previously in the low category began moving into the medium category, and some even reached the high category. This increase appears to be more pronounced in questions that require case analysis, rather than just numerical calculations. So it is not just "smarter at calculating", but starting to understand the context.

When viewed from the average score, there was a significant increase from the pretest to the posttest. For example, the average pretest score is 62, while the average posttest score increases to 78. This increase shows a relatively consistent change in ability in almost all participants. Of course, not all students experience the same

increase—some jump quite high, others increase gradually. This variation actually gives the impression that the learning process takes place dynamically. To clarify the comparison, the following table of student pretest and posttest results is presented:

**Table 1. Comparison of Pretest and Posttest Scores**

| Grade Categories | Pretest | Posttest |
|---|---|---|
| High (≥ 80) | 5 | 15 |
| Moderate (65–79) | 10 | 12 |
| Low (< 65) | 15 | 3 |
| Total | 30 | 30 |
| Average | 62 | 78 |

Table 1 shows a significant shift in the distribution of values from before to after PBL implementation. At the pretest stage, most students are still in the low category (15), while only 5 are in the high category. However, after the learning, the number of students in the low category dropped sharply to 3, while the number in the high category increased to 15. On the other hand, the medium category is relatively stable, although it still undergoes slight changes. This pattern gives the impression that the improvement is not partial, but comprehensive—as if there is a push to lift most students out of the low-grade zone toward a better level of understanding.

**Improving Students' Financial Analysis Skills Based on Statistical Tests and N-Gain Scores**

The improvement in students' financial analysis skills in this study was measured using two approaches: statistical tests and N-gain value analysis. The results of the paired sample t-test showed a significant difference between the pretest and posttest scores. The significance value (Sig. 2-tailed) is below 0.05, which means that the increase that occurred was not just a coincidence. In other words—although it sounds technical—the implementation of Problem-Based Learning (PBL) has a measurable impact on students' financial analysis skills.

If you look at the average difference, the increase that occurred is also quite noticeable. The average student score increased from 62 to 78, with a difference of 16 points. This is not a small increase. In the context of learning, especially analysis-based learning, such improvements usually reflect a change in thinking rather than just memorization of the material. Even so, individual variations remain—some students have seen significant improvements, while others have seen gradual improvements.

In addition to statistical tests, N-gain analysis is used to assess the effectiveness of improving students' abilities. The results of the calculation showed that most students were in the medium N-gain category, with an average score of around 0.58. This shows that the applied learning is quite effective in improving financial analysis skills, although it has not reached the high category overall. Some students also reach the high category, but the number is not dominant. To give a clearer picture, the following is a table of statistical and N-gain test analysis results:

**Table 2. Statistical Test Results and N-Gain Value**

| Indicator | Score | Remarks |
|---|---|---|
| Average of Pretest | 62 | |
| Average of Posttest | 78 | |
| Average Difference | 16 | There is an increase |
| Sig. (2-tailed) | 0,000 | Significance (< 0,05) |
| Average of N-Gain | 0,58 | Medium Category |

Table 2 shows that students' financial analysis skills improve consistently and measurably. The average score rose from 62 to 78, a 16-point increase, indicating a significant improvement in performance after the implementation of Problem-Based Learning. The results of the statistical test, with a p-value of 0.000 (smaller than 0.05), further confirm that this increase is significant, not a mere coincidence. On the other hand, the average N-gain value of 0.58 in the medium category suggests that the increase in effectiveness is at a fairly good level. However, it has not yet reached the high category overall. So, when put together, these data seem to corroborate each other—the value increases, is statistically significant, and is at a fairly solid level of effectiveness.

**Changes in Student Activities and Participation in Problem-Based Learning**

Observation findings during the learning process indicate a noticeable change in student behavior. However, it is not always reflected immediately in the numbers. At the beginning of the meeting, the class tends to be passive—the discussion is ongoing, but a few students often dominate it. Others seem hesitant to speak, even when they understand the material. There is a kind of "distance" between understanding and the courage to deliver an analysis.

However, after implementing Problem-Based Learning (PBL), the classroom dynamics gradually began to change. Students seem more actively involved in group discussions, exchanging opinions, and even beginning to debate constructively. This activity not only involves previously active students but also draws in those who were previously silent. Discussions become more lively, even if sometimes not fully structured—and that is where the learning process lies.

Another quite striking change is the increase in student confidence in delivering the results of the analysis. At first, many students gave their answers hesitantly or read the discussion results without an in-depth explanation. However, as the learning progressed, they began to dare to explain arguments, defend opinions, and even respond to criticism from other groups. This is not an instant change, but it is slowly felt—like there is "little courage" that grows from each encounter. To provide a more systematic picture, the following are the results of observation of student activities during learning:

**Table 3. Results of Student Activity Observation**

| Observed Aspects | Before PBL (%) | After PBL (%) |
|---|---|---|
| Participation in discussions | 45 | 80 |
| Courage to express one's opinion | 40 | 75 |
| Ability to explain analysis | 38 | 72 |
| Interaction between students | 50 | 85 |

Table 3 shows that all aspects of student activities have increased quite consistently after the implementation of PBL. Participation in discussions, which was initially at 45%, increased to 80%, indicating that student involvement in the learning process has become much more active. The same can also be seen in the courage to express opinions and the ability to explain the analysis, each of which increased significantly. In fact, student interaction reached 85%, suggesting that the classroom atmosphere has become more dynamic and collaborative. So, while these numbers may seem simple, they actually reflect a pretty fundamental change in learning behavior—from passive to more participatory and communicative.

## Discussion

The results of this study, if summarized, reveal three interrelated main findings. First, there was a significant increase in students' pretest-to-posttest scores after implementing Problem-Based Learning (PBL). Second, the statistical test results and the N-gain value confirmed that the increase was in the moderate but statistically significant range. Third, in terms of observation, students' learning behavior changes—they become more active, more confident, and more involved in the case analysis process. These three findings, although derived from different approaches, lead to one common pattern: a shift from passive learning to more participatory and analytical learning.

Interestingly, these changes are not only visible in the final results but also in the learning process itself. Students no longer receive information; they begin to build understanding through discussion and the exploration of real cases. There is a kind of transition—slow but felt—from "memorizing concepts" to "understanding context." This aligns with the characteristics of PBL, which emphasize problem-solving and critical thinking and encourage students to construct their own knowledge through learning experiences (Hmelo-Silver, 2004).

Compared with previous research, these findings share similarities and differences. Several studies have shown that PBL is effective in improving learning outcomes and critical thinking skills in various fields, including economics and business education (Savery, 2006; Prince, 2004). However, most research has placed greater emphasis on general cognitive abilities, such as understanding concepts and academic test performance, without specifically measuring financial analysis capabilities in the banking context (Harpiansi, Anggra Prima, 2025; Purwanto, Marsinah, et al., 2025).

On the other hand, some recent research has begun to lead to contextual learning in the financial sector. However, it is still limited to financial literacy or the use of learning technologies (Alam et al., 2019). This study tries to fill this gap by integrating PBL directly in the context of banking case analysis. So, it is not just "learning about banks", but actually practicing thinking like a financial analyst. This is where the slightly different—or perhaps more specific—contributions lie.

The results of this study show that the effectiveness of PBL in improving financial analysis skills does not come solely from the method itself, but also from the way it forces students to deal with the complexity of real problems. (Hidayad et al., 2024; Satriah et al., 2025). When students face a credit case or a risk analysis, they have no choice but to think more deeply, connect concepts to data, and make decisions. This process, in turn, fosters a stronger analytical mindset.

The implications of this research are quite broad, especially in the development of banking economics learning in universities. PBL can be used as an alternative learning model that is more contextually relevant and aligned with industry needs. Lecturers no

longer merely deliver material; they also serve as facilitators, guiding students' thinking. In addition, the results of this research open up opportunities to develop a curriculum that is more practice- and case-based (Hatidah et al., 2025; Indriani et al., 2025).

However, despite the fairly positive results, several challenges remain. One limitation is the number of samples and the study duration, which may limit the generalizability of the results. In addition, the complexity of banking cases is a challenge in itself—not all students are equally ready to deal with complex, ambiguous problems. (Astirini Swarastuti et al., 2024; RA Rodia Fitri Indriani et al., 2024). This, in some situations, can actually be an obstacle in the learning process. (Netti Herawati et al., 2025; Ridayani & Purwanto, 2024).

In the future, this research can be further developed by integrating aspects of leadership and communication skills, especially in the context of language. In the banking world, analytical skills do not stand alone—they always go hand in hand with the ability to make clear and convincing decisions. So, it would be interesting if further research examined how PBL can improve not only analytical skills but also financial communication skills and even team leadership decision-making. Maybe that is where this research can develop further.

## CONCLUSION

The conclusion of this study shows that the application of Problem-Based Learning (PBL) in banking economics courses positively impacts students' financial analysis skills. The increase is not only reflected in test results showing significant differences between before and after learning, but also in changes in how students understand and solve problems. Students are better able to interpret financial data, identify risks, and make more logical analysis-based decisions. On the other hand, the learning process also encourages active involvement and builds confidence in delivering arguments, making learning no longer passive or one-way.

In the future, this research will still open up a fairly wide development space. Further research suggests adding variables such as financial literacy, self-confidence, and financial communication skills to get a more comprehensive picture. In addition, the use of more robust experimental designs, such as true experimental designs with control groups, can improve the validity of research results. In terms of implementation, developing case-based learning materials that are more realistic and closer to industry practices is also important, so that students do not only learn from simple simulations but really feel the complexity of decision-making in the banking world.

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