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## **The impact of investment risks on the financial performance of banks according to Basel III**

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**Abstract.** The risks of banking operations have increased with the expansion of banks' activities and the diversity of their services. The article classified the risks according to their significance. At the same time, the risks that were previously considered less important were included in the category of risks with a high significance after the occurrence of financial crises and their consequences. The risks were identified after the sub-prime lending crisis in the United States. Five main risks threaten banking operations, namely, interest rate risk, liquidity risk, market risk, capital risk, and operational risk. The objective of this study is to analyze and assess the impact of the decisions of the Basel Committee on Banking Supervision aimed at limiting these risks and avoiding financial and investment risks by banks, as well as preventing other financial crises in the future. The article also analyzes the amendments to the Basel I, II, and III Accords taking into account the impact of the coronavirus pandemic. In addition, an assessment of the impact of investments on the financial performance of banks in accordance with the Basel decisions is made.

**Keywords:** financial risks, investment risks, risk management, capital adequacy, Basel Committee, Saudi banks

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Научная статья

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## **Влияние инвестиционных рисков на финансовые результаты банков по стандарту Базель 3**

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**Аннотация.** Риски банковских операций возросли с расширением деятельности банков и разнообразием их услуг. В статье были классифицированы риски по степени их значимости. При этом риски, которые ранее считались менее важными,

были включены в категорию рисков с высокой степенью значимости после возникновения финансовых кризисов и последствий, которые последовали за ними. Идентификация рисков была проведена после кризиса субстандартного кредитования в США. Пять основных рисков угрожают банковским операциям, а именно, процентный риск, риск ликвидности, рыночный риск, риск капитала и операционный риск. Целью настоящего исследования является анализ и оценка влияния решений Базельского комитета по банковскому надзору, направленных на ограничение этих рисков и избежание банками финансовых и инвестиционных рисков, а также на предотвращение попадания в другие финансовые кризисы в будущем. В статье также проанализированы поправки к соглашениям Базель 1, 2 и 3 с учетом влияния пандемии коронавируса. В добавление к этому дана оценка влияния инвестиций на финансовые результаты банков в соответствии с решениями Базеля.

**Ключевые слова:** финансовые риски, инвестиционные риски, управление рисками, достаточность капитала, базельский комитет, саудовские банки

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## Introduction

Establishing a stable and solid banking system in the face of banking crises, whether internal or external, is a primary goal for the monetary and financial authorities of any country, especially since achieving such stability means greater confidence for investors and customers in the banking system as a whole and its ability to perform its financing, intermediary and investment functions. Therefore, monetary authorities set a set of precautionary rules and obligations that must be adhered to and implemented by those dealing in the banking market. Some of these obligations and rules are of internal origin, and some are of external origin, as is the case with the rules of the three Basel Accords in the second case. Therefore, the Basel Committee on Banking Supervision and Regulation set three basic pillars in its second agreement as international standards for banking work, namely, the minimum capital requirements, supervisory review of capital adequacy, and market control and regulation. With the occurrence of the subprime mortgage crisis in 2008, the shortcomings of this agreement emerged, which led the committee members to issue Basel III, which raised the minimum capital adequacy to raise banks' capital to reduce the incidence of financial crises in the future.

Investment risks are one of the main factors affecting the financial results of banks, especially in light of the increasing economic challenges with the application of Basel III standards. It has become necessary to understand how these risks affect the performance and financial stability of banks.

Therefore:

How do investment risks affect the financial results of banks in the context of applying Basel III standards?

Importance of the topic.

- Improving financial stability
- Risk management
- Increasing confidence
- Achieving profitability

### ***The concept of investment risks***

It is known that investors, when making investments, aim primarily to achieve profit and capital development, and they estimate these profits in advance, but after a period of time after investors make their investments, they may not achieve all the expected profits completely and accurately. Here, a concept known as risk arises [1, p. 181]. The concept of risk involves the possibility of not achieving the expected profit or return, represented by the distributed profits and interest, accurately and the deviation of the actual return achieved after making the investment and trading from the previously expected return before starting these businesses. In order to determine the degree of risk, all expected and achieved returns are compared, and the risk is zero when both of these returns are equal. The risk was defined as not achieving the return, and some defined it as the irregularity of returns, which is due to the uncertainty related to future predictions.

### ***Development of the capital adequacy ratio calculation***

Capital adequacy has undergone several developments that reflect the development in the banking system as a whole and the development in bank management in general and risk management in particular, which are as follows.

Capital represents the amount of equity owned by the commercial bank and this ratio measures the extent to which the bank resorts to equity in financing assets [2, p. 130].

It can be calculated through the following relationship [3, p. 186]:

$$\text{Solvency ratio} = \text{Equity} / \text{Total Assets} \times 100 \quad (1)$$

This measure is considered one of the traditional measures and its use emerged after World War II due to the defects of the previous measure, which links owned capital to assets because the loss incurred by capital is the result of the use of assets [4, p. 248].

### ***Capital to risk assets ratio***

It is the ratio of risk assets to owned capital and is considered a development of the previous measure. Therefore, this measure excludes from the total assets those that are considered riskless or have low risks (liquid assets) [5, p. 262]:

$$\text{Capital to Risk Assets Ratio} = \text{Bank Capital} / \text{Risky Assets} \times 100 \quad (2)$$

Risky assets represent all assets except cash in the bank and at the central bank + government bonds + loans granted to the government and official departments (they are guaranteed).

### ***The basic aspects of Basel I Committee decisions***

The Basel I decisions included many aspects, the most important of which are the following:

*Focus on credit risks*

As Basel I aims to calculate the minimum limits of capital, taking into account credit risks in addition to taking into account country risks to some extent, and the capital adequacy standard according to the first agreement in 1988 did not include facing other market risks such as interest rate risks, exchange rate risks, and investment risks in securities.

*Focus on the quality of assets and the adequacy of the provisions that must be formed*

As the focus was on the quality of assets and the level of provisions that must be formed for assets or doubtful debts and other provisions [6, p. 221].

*Focus on dividing the world's countries into two groups in terms of credit risk weights*

The Basel I decisions relied on dividing countries in terms of credit risk weights into two groups [7, p. 102]. Table 1 represents the risk weights of assets within the balance sheet according to Basel 1.

**Table 1. Risk weights of assets within the balance sheet according to Basel 1 requirements**

Risk level	Asset type
0%	<ul style="list-style-type: none"><li>– Cash</li><li>– Currency liabilities from central governments in and financed by local currency</li><li>– Currency liabilities and liabilities secured by securities issued by central governments of OECD countries or guaranteed by central governments of OECD countries</li></ul>
0% or 10% or 20% or 50%	<ul style="list-style-type: none"><li>As decided by local authorities</li><li>– Liabilities from local public sector institutions and loans secured or covered by securities issued from such institutions</li></ul>
20%	<ul style="list-style-type: none"><li>– Liabilities secured by multilateral development banks, as well as liabilities secured or covered by securities issued by such banks.</li><li>– Liabilities from banks registered in OECD countries, as well as loans guaranteed by them.</li><li>– Liabilities from local banks outside OECD countries with less than one year remaining due, as well as loans with less than one year remaining due and guaranteed by banks registered outside OECD countries.</li><li>– Claims from securities companies registered in OECD countries and subject to regulatory agreements, as well as claims guaranteed by those companies.</li><li>– Claims from local banks outside OECD countries with less than one year remaining due, as well as loans with less than one year remaining due and guaranteed by banks registered outside OECD countries.</li><li>– Claims from non-local public sector institutions in OECD countries, which do not include central government claims and loans guaranteed by securities issued from these institutions.</li><li>– Cash on hand</li></ul>
50%	<ul style="list-style-type: none"><li>– Loans fully secured by mortgages on residential properties occupied by borrowers or to be rented to third parties</li></ul>
100%	<ul style="list-style-type: none"><li>– Claims from the private sector</li></ul>

Risk level	Asset type
	<ul style="list-style-type: none"> <li>– Claims from banks registered outside the OECD countries with a maturity of more than one year</li> <li>– Claims from central governments outside the OECD countries with a maturity of more than one year</li> <li>– Claims from central governments outside the OECD countries unless granted and financed in local currency</li> <li>– Claims from publicly owned commercial companies</li> <li>– Buildings, machinery and other fixed assets</li> <li>– Real estate and investments (including investments in the form of shares in other companies not on the consolidated balance sheet of the bank)</li> <li>– Capital instruments issued by other banks unless excluded from capital</li> <li>– Other other assets</li> </ul>

Source: Basel Committee on Banking Supervision, International convergence of capital measurement and capital standards, 2005, p. 19, <https://www.techtarget.com/whatis/definition/Basel-II>

Table 2 summarizes the components of capital, the elements excluded from it, and the restrictions imposed on it according to Basel I.

**Table 2. Components of capital according to Basel I decisions**

Components of basic capital	Components of the supporting capital
<ul style="list-style-type: none"> <li>– Paid-up capital (shareholders' equity): (including issued and fully paid common shares and preferred shares.</li> <li>– Reserves of all types except for the provision for doubtful debts.</li> <li>– Retained earnings</li> </ul>	<ul style="list-style-type: none"> <li>– Undisclosed reserves.</li> <li>– Asset revaluation reserves.</li> <li>– General provisions.</li> <li>– Various capital instruments (stocks and debt instruments</li> </ul>
Excluded items from the basic capital	Capital restrictions
<ul style="list-style-type: none"> <li>– (Good Will) Fame</li> <li>– Investments in banks and affiliated financial institutions - Mutual investments in bank capital</li> </ul>	<ul style="list-style-type: none"> <li>– The total of the supporting capital shall not exceed 100% of the basic capital.</li> <li>– The percentage of supporting loans shall not exceed 50% of the value of the basic capital.</li> <li>– The maximum limit for general provisions shall be 1.25% of risk</li> <li>– Weighted assets</li> </ul>

Source: Prepared by the authors based on [8, p. 185].

#### *Amendments to the Basel I capital adequacy standard*

In 1996, the Basel Committee issued an agreement for calculating capital adequacy to confront market risks [9, p. 24], after forming three capital layers, as it became necessary when calculating the total capital ratio of a commercial bank to have a numerical link between credit risks and market risks by multiplying the market risk measure by 12.5 and then adding the result to the total assets weighted by risk weights and collected for the purposes of confronting credit risks [10, p. 40], and accordingly the adequacy formula becomes capital after including market risks in calculating the capital adequacy standard in banks as follows [11, p. 09]:

Capital Adeauacy Ratio (Cook Standard) =  
((Basic Capital+Funding Support)/Risk Weighted Assets and Liabilities)≥8% (3)

Note that the third tranche (subsidized loans) must meet the following conditions of 250% of capital:

- the maturity period of the subsidized loans must not be less than two years, and must be within the bank's limits;
- they must be valid for covering market risks only, including exchange risks;
- the elements of the second tranche (subsidized capital) may be replaced by the third tranche (subsidized loans) of the capital within the limits of 250%;
- subject to the freezing text that stipulates that interest or principal may not be paid if this will lead to
- that the first tranche of capital is greater than or equal to both the second and third tranches [12, p. 45–46].

### ***Basel II Committee decisions on capital adequacy***

Basel II introduced advanced methodologies for measuring credit, market, and operational risks, which are essential for determining the capital requirements for banks. This agreement fostered a new culture in banking, particularly in financial risk management, enabling institutions to better address both internal and external shocks [13, p. 103]. While some documents from the Basel Committee are advisory rather than mandatory, they provide foundational principles for effective banking risk management and asset-liability management, serving as a semi-integrated guide for internal and external controls within banks [14, p. 102].

#### **1. Justifications for the issuance of the Basel II Accord.**

The Basel Committee indicated in its new decisions that the justifications for the proposed amendments to the calculation of the capital adequacy standard are due to many reasons, the most important of which are mentioned below:

- improvement in the methods followed by banks to measure and manage risks, which requires research into the possibility of relying on these methods to determine the amount of capital required;
- Basel I did not take into account the difference in credit rating between one debtor and another when determining risk weights;
- as we mentioned earlier, Basel I covered two types of risks: credit risks and market risks, while Basel II covered operational risks in addition to the previous risks, with different methods of measuring credit risks [15, p. 109].

#### **2. Objectives of the Basel II decisions:**

- developing methods for measuring and managing banking risks;
- controlling and controlling the total risks through capital requirements or through supervisory review such as interest rate risks on the bank's portfolio [16, p. 284];
- creating consistency between capital in banks and the practice of modern risk management;
- introducing a more comprehensive approach to addressing risks by including many of them when calculating the capital adequacy ratio that were not included in the previous agreement (Basel I);

– achieving more security for the new global banking system [17, p. 33].

### 3. Negatives:

– a bank may resort to not forming provisions to demonstrate commitment to the capital adequacy standard, which leads to a formal inflation of profits as a result of increasing reserves, which accelerates the deterioration of the bank's situation. Therefore, the supervisory authorities must follow up on the adequacy of the provisions formed;

– the bank may try to evade the application of this standard by resorting to credit alternatives that fall outside the budget, which should be followed up by the supervisory authorities;

– in order to achieve the capital adequacy standard according to Basel II, banks tend to withhold high percentages of profits to increase the capital base, which means that profits are not distributed to shareholders adequately.

### *Basel III Committee decisions on capital adequacy*

Basel III aimed to enhance the resilience of banks by improving capital quality and transparency. It raised the minimum capital requirement from 2% under Basel II to 4.5%, with an additional 2.5% reserve for common shares [18, p. 162]. The basic capital requirement to cover potential losses was increased to 7%, and the capital adequacy ratio was raised from 8% to 10.5%. Basel III also introduced crucial elements such as the liquidity ratio and leverage ratio, which are vital for effective risk management, thereby aiming to reduce the likelihood of future financial crises. The implementation of these standards began in 2013 and continued through various phases until 2019 [19, p. 111].

Comparison between Basel II and Basel III decisions. Table 4 highlights the most important similarities and differences between Basel II and Basel III decisions.

*Table 4. Similarities and differences between Basel II and Basel III decisions*

Similarities	Differences
<p>– Their emergence came in the wake of the financial crises, Basel II following the Mexican crisis and the Southeast Asian crisis, and Basel III came after the global financial crisis of 2008.</p> <p>– They include the same risks, which are credit risks, market risks, and operational risks, as well as the same method for calculating them, which remained the same in the Basel III Accord.</p>	<p>– The difference between them in terms of capital components and capital adequacy ratio is 8% according to Basel II and 10.5% according to Basel III.</p> <p>– Basel III cancelled the third tier of capital components (subordinated loans) according to Basel II, and replaced it with a new tier of capital called precautionary capital.</p> <p>– Basel III included new ratios, namely liquidity ratios and leverage ratios, which were not included in Basel II.</p> <p>– Applying Basel III standards is more expensive than applying Basel II standards, especially with regard to capital adequacy, liquidity and leverage ratios, as they increase the cost of banks</p>

Source: [20, p. 110–111].

### ***Interest rate risks and exchange rate risks and their relationship to capital adequacy***

Interest rate risks and exchange rate risks are significantly related to capital adequacy as they can directly affect capital adequacy rates in banks in the event of fluctuations in both interest rates and exchange rates in the market, and their reflection on interest income from loans as well as the cost of interest on deposits, so bank management must implement effective strategies to deal with these risks.

Measuring interest rate risks and exchange rate risks according to the Basel Committee.

The Basel Committee on Banking Supervision has identified two methods for measuring interest rate risks and exchange rate risks, which are the standard method and the internal model's method, and they will be explained through this element.

(1) The standard method. The measurement objective through this method is to calculate the size of the losses resulting (for items inside or outside the budget) from market price movements. This method depends on specific elements that differ with respect to the interest rate and the exchange rate.

With respect to the interest rate, the measurement method depends on two elements: specific risks (private), general market risks [21, p. 214].

Regarding exchange rates, the relationship between interest rate and exchange rate risks and capital adequacy through what was previously discussed regarding Basel I, II, and III decisions, the Basel Committee has clarified the relationship between capital adequacy and market risks, the basic components of which are interest rate risks and exchange rate risks, making it a basic element (denominator) in the relationship through which the bank's capital adequacy ratio is calculated. The higher the market risks, the lower the bank's capital adequacy, and thus the relationship is inverse between market risks and the capital adequacy ratio. The literature also indicates the existence of an inverse relationship between interest rate risks and capital adequacy, meaning that an increase in interest rate risks leads to a decrease in capital adequacy (bank solvency) and vice versa [22, p. 64].

### ***New Basel IV decisions and the challenges of the COVID-19 pandemic***

In 2017, several important amendments were made to the international banking standards resulting from the Basel Committee on Banking Supervision, as the latter completed the final paper called "Basel IV Decisions", as these amendments focused on calculating risk-weighted assets and improving the ability of the bank capital ratio to face risks, which requires the banking system to have a high amount of capital and a safety margin, in addition to enhancing the strength and risk sensitivity of the unified model for credit risks and operational risks. The use of internal models is restricted by placing restrictions on the inputs used to calculate capital requirements under the internal credit risk ratio model, as Basel IV aims to enhance the minimum capital requirements standards at the global level to deal with previous financial crises and reduce future financial crises. The Basel IV decisions include a set of amendments at the following levels:

(a) standard approaches to measuring and managing credit risks, by re-evaluating the standard model and the internal model;

- (b) re-evaluating the standard model and the model Internal for measuring and managing market risks;
- (c) reforming the standard approaches to measuring and managing operational risks, with the elimination of all alternative models [23, p. 231];
- (d) reducing the gap between the internal approaches used by banks and the global standard approaches;
- (e) working to adopt standards for financial leverage in banks (determining the maximum financial leverage ratio);
- (f) requiring banks to meet higher financial leverage ratios, as it is likely that the maximum financial leverage ratio will be determined as part of completing the Basel III decisions.

These new changes are considered a complement to the reforms stipulated in the Basel III decisions, as they are called "final reforms" and aim to introduce fundamental changes in the way banks deal with their capital and move towards mergers to create large entities.

The legislators in the Basel Committee indicated the date of February 2022 as the date for the launch of its first phase, which will extend to 2027, due to the world facing health and economic challenges and crises due to the outbreak of the novel coronavirus. Basel Committee measures to confront the repercussions of the spread of the COVID-19 pandemic The Basel Committee on Banking Supervision put in place additional measures to mitigate the impact of the coronavirus on the global banking system, which is the second amendment to the committee affiliated with the Bank for International Settlements since March 30, 2020, as these new measures support banks' lending to the real economy and provide additional operational capacity for banks and supervisors to respond to immediate priorities for financial stability. In this context, the Bank for International Settlements, which is the central bank for all central banks around the world, believes that between 2011 and 2019, more than 100 banks around the world were able to increase their equity by 98%, equivalent to approximately 2,000 billion euros.

Here, analysts believe that banks that complained about the severity of the restrictions imposed by the Basel standards for banking supervision, especially the latest one, which aims to strengthen the strength of capital, are today, thanks to this committee and its decisions, enjoying a large amount of capital that helps them overcome the global health crisis and face the conditions imposed on all sectors [24, p. 72].

The COVID-19 pandemic had a set of repercussions on the decisions of the Basel Committee regarding the implementation of the remaining of its third decisions (Basel III), which were supposed to end the period set for their implementation in 2020, which is the year of the pandemic that swept the entire world and disrupted many of its economic sectors, as it caused liquidity problems for companies, which in turn was reflected in the global banking sector and all financial markets due to the lack of liquidity and a significant decrease in cash flows. The Basel Committee's measures to mitigate the repercussions of this pandemic on banks were mainly represented in postponing the date of implementation of the remaining Basel III standards, especially the new version of Basel III or what is

called Basel IV for a period of one year until January 1, 2023, and the committee also granted banks a similar extension to adopt the new framework for market risks and disclosure requirements within the third pillar. As for the implementation of the framework for the requirements of international systemically important banks, its implementation has been postponed until 2022, and the Committee's decision to postpone the implementation of the new Basel rules is expected to give both banks and supervisory authorities sufficient space to respond to the crisis caused by the coronavirus, which will alleviate the capital constraints that some banks may face and free up their operational capacity [25, p. 54].

### ***Results***

Through this study, a set of results were obtained that the application of the Basel Committee Accord in its various stages aims to reduce the risks to which banks are exposed, as it was shown that Basel I Accord set a capital adequacy standard to cover credit risks and achieve fair competition between banks; Basel II Accord, which came as an amendment to Basel I Accord as a result of its shortcomings in confronting risks, which led to a shift in the risk management process by encouraging banks to adopt better methods and practices in managing their risks; Basel III proposals do not contain the foundations for banks to avoid the risk of the global financial crisis that emerged in 2008 and the crises that will emerge in the future by supporting capital adequacy in banks and liquidity risks, and thus the shortcomings will be addressed,

Genuinely, the Basel III Committee has set a set of principles for a sound management of liquidity risks.

### ***Recommendations***

1. Banks should commit to the Basel III Accord through the actual application of Basel standards in addition to supporting the banking law and legislation, on the one hand, and emphasizing its role in managing banking risks, on the other hand.
2. Banks should spread cultural awareness among bank employees to learn about the importance of banking risks in the bank and how to use its technology.
3. Banks should enhance the level of transparency and disclosure of investment risks and financial results as this will help build trust with investors and customers and enhance the bank's reputation in the market.
4. Banks should adopt a strategy of diversifying investments to reduce concentration risks. Diversification can help reduce the negative impact of risks on financial results.
5. Banks should invest more in financial innovation and new technology such as FinTech and artificial intelligence. These innovations can enhance the level of risk management and improve financial performance.

### ***Conclusion***

The subject is of great importance in light of the rapid economic and financial developments. Understanding this impact of investment risks on the financial results of banks according to Basel III standards contributes to enhancing financial stability, improving risk management, and increasing the profitability of banks in

the long term. It also enhances the confidence of customers in the banking system and the ability of banks to compete in global markets. Focusing on this subject is vital to ensure the continuity of banks and the achievement of their strategic objectives in light of the changing business environment. Banking risk management is the process of identifying, measuring, and evaluating the risks to which the bank is exposed, as well as preparing plans to avoid or reduce them.

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