

# DEFAULT RATE REPORT

AS OF  
MARCH 2023



FISCAL YEAR 2023 (Q2) DEFAULT EXPERIENCE  
EXPORT-IMPORT BANK OF THE UNITED STATES

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# STATUTORY REQUIREMENT

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This report is prepared in accordance with the requirements of 12 U.S.C. § 635g(g).

*“(g) Monitoring of default rates on bank financing; reports on default rates; safety and soundness review*

*“(1) MONITORING OF DEFAULT RATES.—Not less frequently than quarterly, the Bank shall calculate the rate at which the entities to which the Bank has provided short-, medium-, or long-term financing are in default on a payment obligation under the financing, by dividing the total amount of the required payments that are overdue by the total amount of the financing involved.*

*“(2) ADDITIONAL CALCULATION BY TYPE OF PRODUCT, BY KEY MARKET, AND BY INDUSTRY SECTOR; REPORT TO CONGRESS—In addition, the Bank shall, not less frequently than quarterly-*

*(A) calculate the rate of default-*

*(i) with respect to whether the products involved are short-term loans, medium-term loans, long-term loans, insurance, medium-term guarantees, or long-term guarantees;*

*(ii) with respect to each key market involved; and*

*(iii) with respect to each industry sector involved; and*

*(B) submit to the Committee on Banking, Housing, and Urban Affairs of the Senate and the Committee on Financial Services of the House of Representatives a report on each such rate and any information the Bank deems relevant.*

# EXECUTIVE SUMMARY

## ABOUT EXIM

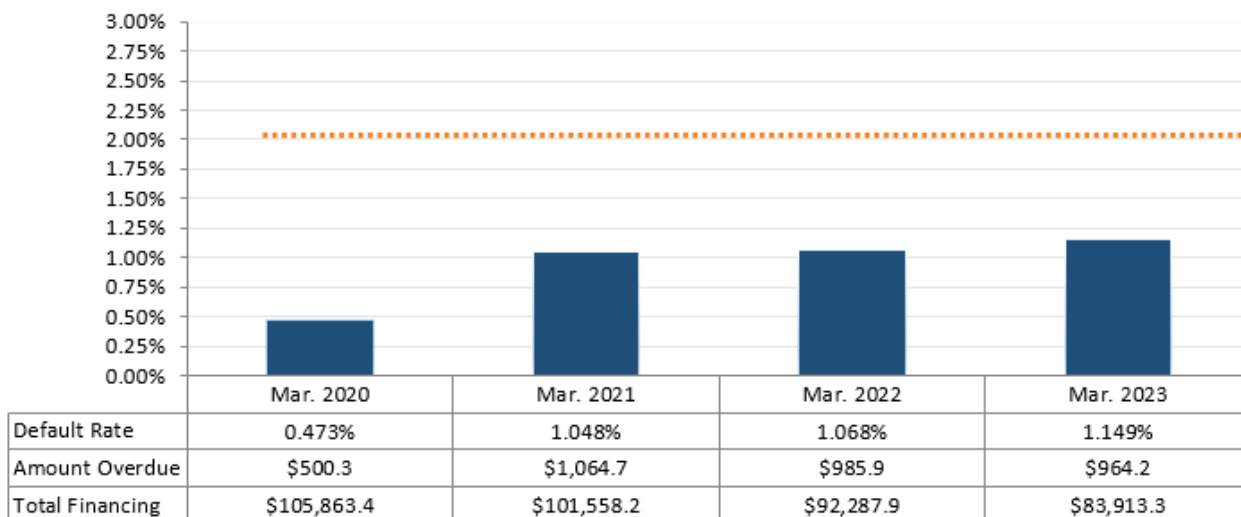
The Export-Import Bank of the United States (EXIM) is an independent executive branch agency with a mission to support American jobs through exports. EXIM provides financing to help U.S. companies compete for global sales through loan guarantee, direct loan, and insurance programs. EXIM financing is only available in cases where the private sector is unable or unwilling to provide financing (e.g., due to portfolio or regulatory considerations) or when U.S. exporters are facing foreign competition backed by official export credit support. EXIM charges fees commensurate with the risk associated with its transactions.

EXIM maintains a comprehensive risk management framework enabling the agency to effectively and responsibly fulfill its mission to support American jobs. This framework begins with due diligence and underwriting to ensure that each transaction has a reasonable assurance of repayment. Following approval, EXIM proactively manages transactions to reduce the risk of default, maximize recoveries, and protect the long-term financial interest of U.S. taxpayers.

## DEFAULT RATE

The default rate is calculated pursuant to statutory requirements and reflects actual defaults at a point in time.<sup>1</sup> EXIM's default rate as of March 31, 2023, is **1.149 percent** as shown in Exhibit 1.

**Exhibit 1: Default Rate**



Data used to calculate the default rate is sourced from the agency's financial management system of records.

This rate reflects a “total amount of required payments that are overdue” (claims paid on guarantees and insurance transactions plus loans past due) divided by a “total amount of financing involved” (disbursements).<sup>2</sup> The default rate of 1.149 percent is below the statutory two percent cap at which

<sup>1</sup> 12 U.S.C. 635g(g)(1). This default rate differs from those published in the Federal Credit Supplement for the President's Annual Budget. The reported rate in the Budget Appendix reflects projected defaults over the life of the loan while the default rate in this report reflects actual defaults at a point in time. The Federal Credit Supplement can be found at <https://www.whitehouse.gov/omb/supplemental-materials/>.

<sup>2</sup> 12 U.S.C. § 635g(g)(1). The default rate is based on actual disbursements and not authorized financing amounts.

EXIM's lending cap would immediately freeze.<sup>3</sup> The default rate decreased this quarter from 1.511 percent in December 2022 to 1.149 percent in March 2023, largely due to a significant recovery of a default in EXIM's aircraft portfolio.

EXIM continues to actively monitor global macroeconomic conditions that may impact its portfolio.

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<sup>3</sup> 12 U.S.C. § 635e(a)(3)

# DEFAULT RATE

## DEFINED

EXIM's statute requires that the default rate be calculated "by dividing the total amount of the required payments that are overdue by the total amount of the financing involved."<sup>4</sup>

The default rate is based on the total financing of EXIM's active credit portfolio. Any disbursed

loan, guarantee, or insurance policy that will mature after the date of this report is included as part of the active portfolio. Any claim payments made for guarantees and insurance transactions and any direct loan payments in arrears in EXIM's active portfolio are considered to be in default.

**Active Credit Example:** A long-term guarantee authorized in FY 2014 with a 10-year repayment term (the transaction matures in FY 2024)

**Inactive Credit Example:** A long-term guarantee in FY 1994 with a 10-year repayment term (the transaction matured in FY 2004)

$$\text{Overdue Payments} = \text{Defaults Paid} + \text{Expenses} - \text{Recoveries}$$

$$\text{Total Financing} = \text{Disbursements (Active)}$$

Data used to calculate the default rate is derived from information contained in EXIM's financial system of record, which records all accounting data for all authorized transactions.

## COMPONENTS OF THE DEFAULT RATE

### Numerator – Overdue Payments

The "total amount of required payments that are overdue," representing the numerator, is defined as claims paid on guarantees and insurance transactions as well as unpaid past due installments on loans in EXIM's active portfolio, net of any recovered amounts collected and expenses incurred related to recovery efforts. The breakdown of the components of overdue payments is provided below.

$$\text{Overdue Payments} = \$1,482.6\text{M (Defaults)} + \$3.5\text{M (Expenses)} - \$521.9\text{M (Recoveries)} = \$964.2\text{M}$$

### Defaults

Defaults are calculated differently for direct loans, loan guarantees, and insurance transactions. For loan guarantees and insurance transactions, upon default of a payment obligation by the foreign buyer of the U.S. export, EXIM pays a claim to the guarantors or the insured parties. These claim payments represent defaults paid. For loans, all monies 30 days or more past due are considered defaults. In cases where EXIM determines that an obligor is no longer able to make current and future repayments for a direct loan, the full outstanding exposure of the loan is considered in default. As part of its portfolio management, EXIM may work with borrowers and lenders to restructure troubled transactions to minimize the risk of loss. When transactions are amended to include provisions for full repayment of the defaulted amounts, such payments are no longer overdue. As of March 2023, EXIM has paid out \$929.7 million in claims and other liquidity relief and had \$552.9 million in loans past due in its active portfolio for a total of \$1,482.6 million in defaults paid for transactions in its active portfolio.

<sup>4</sup> 12 U.S.C. § 635g(g)(1)

### Recoveries

Recoveries made after a default are applied to the specific claim paid or to the loan in arrears and thereby reduce the amount overdue. All recovered amounts are discounted to the time of claim payment or when the direct loan went into arrears. As of March 2023, EXIM has recovered \$521.9 million for transactions in its active portfolio. These recoveries, as well as fees collected from borrowers, are used to offset default claims paid. Recovery efforts occur on a continuous basis, and EXIM frequently collects recoveries for several years after the initial default.

### Expenses

All expenses incurred related to EXIM's recovery efforts are added to the amount overdue. As of March 2023, EXIM has incurred \$3.5 million of expenses related to the recovery process for transactions in its active portfolio.

### Denominator – Total Financing

The “total amount of financing involved,” the denominator, is defined as the disbursed financing associated with EXIM’s active portfolio.

$$\text{Total Financing} = \$83,913.3\text{M} \text{ (Disbursements)}$$

As of March 2023, EXIM provided a total financing of \$83,913.3 million for transactions in its active portfolio through its loan, guarantee, and insurance programs.

### Disbursements

After a credit is approved, the value of the goods and services financed by EXIM is recorded once the goods are delivered to the buyer. Under the guarantee and insurance programs, the private sector provides transaction financing, and the transaction is guaranteed or insured by EXIM. The guaranteed or insured party notifies EXIM when a shipment of goods has occurred or services have been provided, and EXIM records a non-cash “disbursement” to reflect the value of the goods and services guaranteed or insured by EXIM. Under the direct loan program, the goods and services are financed directly by EXIM. Funds are disbursed to pay for the goods or services delivered to the buyer, and a loan receivable, with appropriate loss reserves, is reflected in EXIM's financial system of record.<sup>5</sup> Depending on the type of goods and services financed, the delivery (or disbursement) can occur over a period of several years.

### Default Rate Calculation

As of March 2023, the total amount of the required payments that are overdue (\$964.2 million) divided by the total amount of the financing involved (\$83,913.3 million) equated to a default rate of 1.149 percent for EXIM.

$$\text{EXIM Default Rate (Mar. 2023)} = \frac{\$964.2\text{M (Overdue Payments)}}{\$83,913.3\text{M (Total Financing)}} = 1.149\%$$

<sup>5</sup> EXIM adheres to the provisions of the *Federal Credit Reform Act of 1990*, as amended (2 U.S.C. §§ 661-661f), when executing its reserving practices.

## EXPOSURE

EXIM's exposure differs from the total financing amount. Exposure includes authorized outstanding and undisbursed principal balance of direct loans, loan guarantees, and insurance. Total financing amount refers only to disbursements.

As of March 2023, EXIM's total exposure stood at \$33.8 billion. EXIM's total exposure may not exceed \$135.0 billion.<sup>6</sup>

*“(3) **Freezing of lending cap if default rate is 2 percent or more.** If the rate calculated under section 635g(g)(1) of this title is 2 percent or more for a quarter, the Bank may not exceed the amount of loans, guarantees, and insurance outstanding on the last day of that quarter until the rate calculated under section 635g(g)(1) is less than 2 percent.”*

EXIM's statute also requires that the exposure cap be frozen if the default rate exceeds two percent.<sup>7</sup> As of March 2023, EXIM's default rate of 1.149 percent is below the two percent threshold. With the current default rate below two percent, EXIM's total exposure cap remains at its full statutory limit of \$135.0 billion.

## RESERVES

In addition to reserve requirements under the *Federal Credit Reform Act of 1990*, as amended, EXIM must maintain a certain level of total reserves to protect against future losses.<sup>8</sup>

*“6(b) **Reserve Requirement.** The Bank shall build to and hold in reserve, to protect against future losses, an amount that is not less than 5 percent of the aggregate amount of disbursed and outstanding loans, guarantees, and insurance of the Bank.*

As of the end of FY 2022, EXIM total reserves equaled \$2.8 billion, which was 10.7 percent of EXIM's outstanding exposure (\$26.5 billion).

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<sup>6</sup> 12 U.S.C. § 635e(a)(1)

<sup>7</sup> 12 U.S.C. § 635e(a)(3)

<sup>8</sup> 12 U.S.C. § 635e(b)



# DEFAULT RATE – BY SUBCATEGORIES

## DEFAULT RATE: BY SUBCATEGORY

As required by statute, EXIM has calculated default rates based on each subcategory as of March 31, 2023.<sup>9</sup>

“(2) ADDITIONAL CALCULATION BY TYPE OF PRODUCT, BY KEY MARKET, AND BY INDUSTRY SECTOR; REPORT TO CONGRESS.”

### By Type of Product

EXIM offers loans, guarantees, and insurance products. EXIM reports the default rate for: medium-term loans; long-term loans; insurance; medium-term guarantees; and long-term guarantees.<sup>10</sup> In general, medium-term transactions have a tenor greater than one year and are under \$25 million and long-term transactions are all transactions greater than seven years or more than \$25 million. As of March 31, 2023, medium- and long-term loans had a default rate above two percent. The current elevated medium-term loan default rate is driven by a single default in a program with a relatively small active portfolio. The default rate for long-term loans remained relatively stable, increasing slightly from 2.568 percent in December 2022 to 2.579 percent in March 2023. Exhibit 2 provides a breakout of the default rate by product.

**Exhibit 2: Default Rate by Product**

	MT Guarantees	MT Loans	LT Guarantees	LT Loans	Insurance
Amount Overdue (\$ millions)	\$ 9.9	\$ 4.0	\$ 399.0	\$ 548.9	\$ 2.4
Total Financing (\$ millions)	\$ 909.4	\$ 8.6	\$ 58,045.0	\$ 21,282.6	\$ 1,957.5
Default Rate (%)	1.093%	46.642%	0.687%	2.579%	0.121%

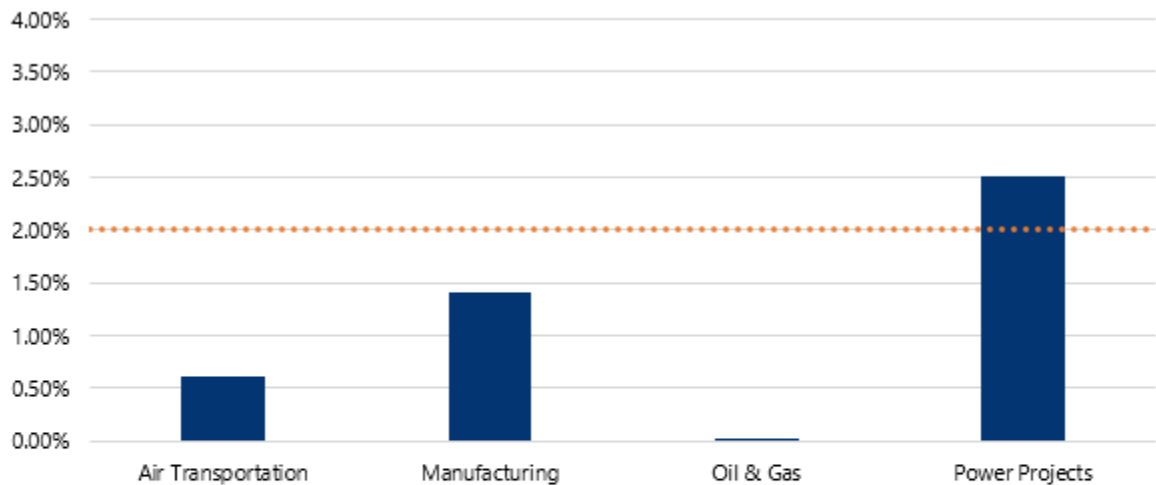
<sup>9</sup> 12 U.S.C. § 635g(g)(2)

<sup>10</sup> EXIM reports the default rates by product in accordance with 12 U.S.C. § 635g(g)(2)(A)(i). Currently, there are no short-term loans in EXIM's active portfolio, and therefore no short-term loan default rate is reported. Consistent with Section 54002(a) of the *Export-Import Bank Reform and Reauthorization Act of 2015* (P.L. 114-94, Div. E), the medium-term program's financing cap was expanded from \$10 million to \$25 million, effective May 2019. The default rate of medium-term financing is calculated on the categorization of the transaction at the time of authorization.

### By Industry Sector

The four largest industries in EXIM's active portfolio are Air Transportation, Manufacturing, Oil & Gas, and Power Projects. These sectors account for 86.3 percent of the total amount of EXIM financing. All the industry sectors, except for Power Projects, experienced a default rate below two percent as shown in Exhibit 3. The default rate for Power Projects remained relatively stable, increasing slightly from 2.48 percent in December 2022 to 2.519 percent in March 2023.

**Exhibit 3: Default Rate by Industry Sector**

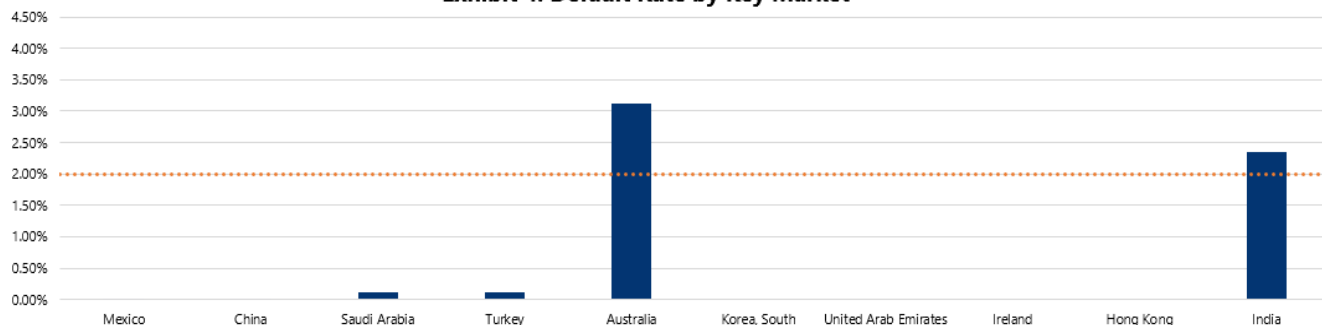


	Air Transportation	Manufacturing	Oil & Gas	Power Projects
Amount Overdue (\$ millions)	\$ 291.6	\$ 137.3	\$ 0.0	\$ 73.2
Total Financing (\$ millions)	\$ 47,532.2	\$ 9,680.9	\$ 12,307.0	\$ 2,906.5
Default Rate (%)	0.613%	1.419%	0.000%	2.519%

## By Key Market

As of March 31, 2023, EXIM had exposure in more than 150 countries. As shown in Exhibit 4, the top ten markets, except for Australia and India, have a default rate below two percent.<sup>11</sup> The higher default rate for Australia is due to one default in 2015. While there has not been a significant default in India since 2020, the Total Financing for exports to India has continued to fall as transactions matured and have rolled off the active portfolio, thereby increasing the country's default rate over the past year from 2.082 percent in March 2022 to 2.344 percent in March 2023.

**Exhibit 4: Default Rate by Key Market**



	Mexico	China	Saudi Arabia	Turkey	Australia	Korea, South	United Arab Emirates	Ireland	Hong Kong	India
Amount Overdue (\$ millions)	\$ 0.3	\$ 0.2	\$ 6.2	\$ 5.2	\$ 136.3	\$ -	\$ -	\$ -	\$ -	\$ 76.3
Total Financing (\$ millions)	\$ 7,621.1	\$ 5,721.8	\$ 5,531.0	\$ 4,882.1	\$ 4,366.6	\$ 3,581.9	\$ 3,635.0	\$ 2,429.4	\$ 2,823.2	\$ 3,253.9
Default Rate (%)	0.004%	0.004%	0.111%	0.107%	3.120%	0.000%	0.000%	0.000%	0.000%	2.344%

<sup>11</sup> The ten key markets reflect top ten markets by total financing.

## DEFAULT RATE: BY MANDATE

EXIM has Congressionally mandated goals to support small business, environmentally beneficial, and Sub-Saharan Africa transactions, as further detailed below.

### EXIM Mandates

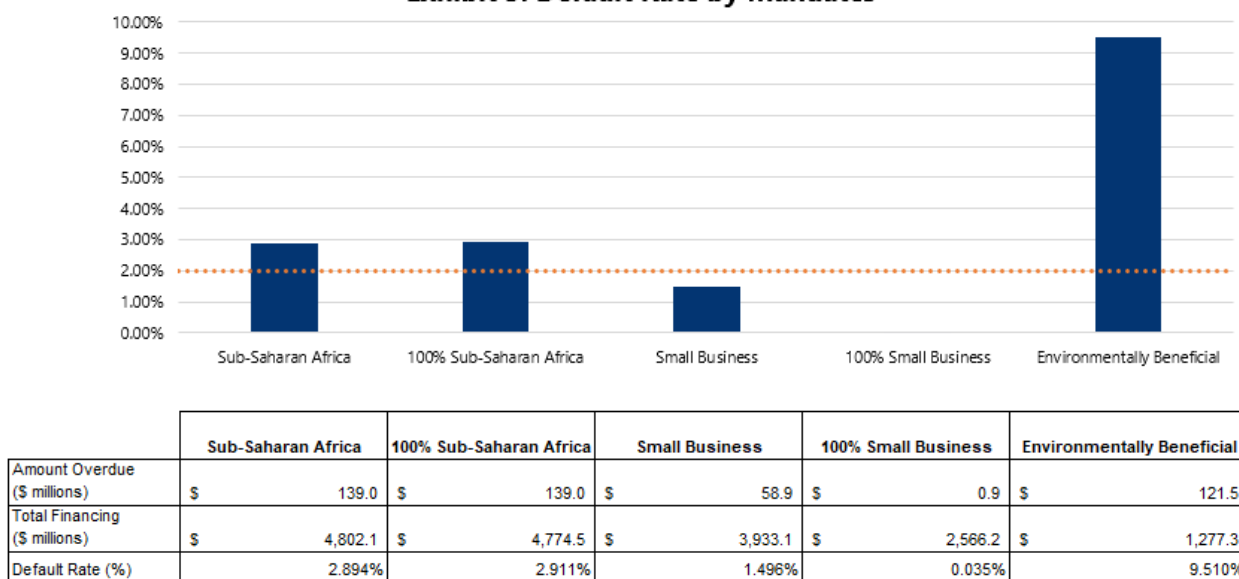
Small Business Mandate (12 U.S.C. § 635(b)(1)(E)(v)): “the Bank shall make available... an amount to finance exports directly by small business concerns (as defined under section 632 of title 15) which shall be not less than 30 percent of such authority for each fiscal year.”

Environmentally Beneficial Mandate (12 U.S.C. § 635i-5(b)(1)): “The Bank shall encourage the use of its programs to support the export of goods and services that have beneficial effects on the environment or mitigate potential adverse environmental effects....”

Sub-Saharan Africa Mandate (12 U.S.C. § 635(b)(9)(A)): “The Board of Directors of the Bank shall ... promote the expansion of the Bank’s financial commitments in sub-Saharan Africa....”

Transactions associated with these mandates account for 11.9 percent of the total amount of EXIM financing. As of March 31, 2023, Small Business transactions experienced a default rate below two percent while Sub-Saharan Africa and Environmentally Beneficial transactions experienced a default rate above two percent as shown in Exhibit 5. Sub-Saharan Africa’s default rate remained stable, increasing slightly from 2.850 percent in December 2022 to 2.894 percent for March 2023. The Environmentally Beneficial default rate also remained stable, increasing marginally from 9.485 percent in December 2022 to 9.510 percent for March 2023. The elevated default rate for Environmentally Beneficial transactions is primarily due to a medium-term loan default for a turbine project.

**Exhibit 5: Default Rate by Mandates**



Note: “Sub-Saharan Africa” and “Small Business” categories include all transactions that are partially or wholly attributed to these respective categories. The “100% Sub-Saharan Africa” and “100% Small Business” categories only include transactions that are wholly attributed to these categories.

### *Risk Rating: By Mandate*

EXIM risk rates its portfolio using a 1 – 11 budget cost level (BCL) scale. The ratings are based, in general, on a borrower's ability to make payments, as indicated by relevant economic factors, and willingness to pay, as indicated by payment record and political and social factors. Ratings 1 through 4 are roughly equivalent to "creditworthy" or "investment grade" private bond ratings. Ratings between 5 and 8 are equivalent to "non-investment grade" bond ratings. Ratings 9 to 11 are for countries either unable to pay fully, even with extended repayment periods, or currently unwilling to make a good faith effort at repayment. EXIM does not use the BCL scale for working capital and multi-buyer insurance, as these products are evaluated using a portfolio analysis approach.

Using the BCL at the time of authorization and based on the authorized amount, EXIM's active portfolio's weighted average risk rating is 4.27, approximately corresponding to an investment grade portfolio. Exhibit 6 provides the weighted average BCLs for the various EXIM mandates.

**Exhibit 6: Weighted Average BCL by Mandate**

Category	Budget Cost Level
Sub-Saharan Africa	5.05
100% Sub-Saharan Africa	5.05
Small Business	5.07
100% Small Business	5.28
Environmentally Beneficial	4.15
<b>Active Portfolio</b>	<b>4.27</b>

# DEFAULT RATE REPORT

## *STRESS TEST ADDENDUM*

AS OF  
MARCH 2023



FISCAL YEAR 2023 (Q2) DEFAULT EXPERIENCE  
EXPORT-IMPORT BANK OF THE UNITED STATES

# STRESS TESTS

In addition to measuring the current default rate, EXIM regularly examines the current portfolio to measure the future default rate under stressed scenarios, as well as to identify how the current portfolio may perform in the future under stressed scenarios. As the Basel Committee on Banking Supervision states, “Stress testing should be used as a risk management tool” for risk identification, monitoring, and assessment.<sup>1</sup> The following section describes what stress testing is, why it is important, how stress testing works, EXIM stress test protocol, and recent results from EXIM’s stress tests.

Overall, the results of EXIM’s September 2023 standard stress tests are in line with prior stress tests given that, up until the start of the COVID-19 pandemic, transactions have been generally repaying, leading to a reduction in exposure.

## WHAT IS STRESS TESTING?

The Federal Deposit Insurance Corporation defines stress testing as “a forward-looking quantitative evaluation of stress scenarios that could impact a banking institution’s financial condition and capital adequacy.”<sup>2</sup> The Federal Reserve has provided a similar definition: “For purposes of this guidance, stress testing refers to exercises used to conduct a forward-looking assessment of the potential impact of various adverse events and circumstances on a banking organization.”<sup>3</sup> In sum, stress testing is forward-looking in nature, and there are multiple stressed scenarios that could impact the current portfolio and current default rates.

## WHY IS STRESS TESTING IMPORTANT?

EXIM follows a formalized stress testing protocol. Consistent with Federal Reserve guidance, EXIM’s stress testing builds capacity to understand EXIM’s risks and the potential impact of stressful events and circumstances on EXIM’s financial condition.<sup>4</sup> Stress testing is an important tool for portfolio management and risk mitigation. Furthermore, the International Monetary Fund states: “Stress testing has become an essential and very prominent tool in the analysis of financial sector stability and development of financial sector policy.”<sup>5</sup> The World Bank concurs, stating, “Regular stress testing of the financial system is the main tool of macroprudential monitoring.”<sup>6</sup> Finally, EXIM’s Inspector General recommended that “EXIM should develop a systematic approach to stress testing and should conduct stress testing at least annually as part of its re-estimate process.”<sup>7</sup> Based on industry best practices and EXIM’s commitment to a comprehensive risk management framework EXIM implemented a stress testing protocol in FY 2014.

<sup>1</sup> Bank of International Settlements. “Basel Committee on Banking Supervision: Stress Testing Principles.” October 2018. <https://www.bis.org/bcbs/publ/d450.pdf>

<sup>2</sup> Baxter, William R. and Thomas F. Lyons. “Stress Testing Credit Risk at Community Banks,” *Supervisory Insights*. The Federal Deposit Insurance Corporation. Vol. 9, No. 1 (Summer 2012). <https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum12/index.html>

<sup>3</sup> Guidance on Stress Testing for Banking Organizations with Total Consolidated Assets of More than \$10 Billion. SR Letter 12-7 Attachment. Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency. May 14, 2012. <https://www.federalreserve.gov/bankinfo/srletters/sr1207a1.pdf>

<sup>4</sup> Ibid.

<sup>5</sup> “European Union: Publication of Financial Sector Assessment Program Documentation—Technical Note on Stress Testing of Banks,” IMF Country Report No. 13/68, March 2013. International Monetary Fund. <https://www.imf.org/external/pubs/ft/scr/2013/cr1368.pdf>

<sup>6</sup> Buncic, Daniel; Melecky, Martin. 2012. Macroprudential stress testing of credit risk: a practical approach for policy makers. Policy Research working paper ; no. WPS 5936. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/994091468251373046/Macroprudential-stress-testing-of-credit-risk-a-practical-approach-for-policy-makers>

<sup>7</sup> “Report on Portfolio Risk and Loss Reserve Allocation Policies.” OIG-INS-12-02, September 28, 2012. Office of the Inspector General, Export-Import Bank of the United States. <http://www.exim.gov/sites/default/files/oig/reports/Final-20Report-20Complete-20Portfolio-20Risk-20120928-1.pdf>

## HOW DOES STRESS TESTING WORK?

The International Association of Credit Portfolio Managers made two overarching recommendations for portfolio stress testing:<sup>8</sup>

1. The institution should have a top-down stress-testing process in place to analyze the impact of extreme economic events on the credit risk of the overall credit portfolio; and
2. The institution should supplement the top-down approach with a bottom-up stress-testing process to measure the impact of adverse events on obligors, or sets of obligors, with significant exposures in the credit portfolio.

## EXIM STRESS TESTING PROTOCOL

On an annual basis, EXIM looks at different ways to perform both a top-down analysis on the entire portfolio as well as a bottom-up approach on certain sets of obligors. For the top-down stress test, EXIM decided to use a Monte Carlo simulation approach, consistent with best practice. This approach allows EXIM to look at numerous scenarios. A report published by the Society of Actuaries found that “the Monte Carlo simulation is one of the most widely used methods of stress testing.”<sup>9</sup> This allows EXIM to use a forward-looking approach over numerous scenarios. The simulation takes every transaction in EXIM’s exposure and simulates whether it defaulted or not during the remainder of its term, based on EXIM’s most current loss rate model. In the default simulation, the total default amount less recoveries is calculated. This loss rate model is reviewed annually by the Office of Management and Budget and audited by KPMG. Each performing portfolio simulation takes every transaction and sums their respective default amounts. The total is EXIM’s loss for that simulation. EXIM then runs this same simulation 20,000 times to create a distribution of possible losses. By creating a distribution of possible losses, EXIM is able to look at the extreme tails of the distribution to see how the portfolio performs at its worst. In essence, this means EXIM looked at 20,000 different “lives” of the portfolio. In some lives perhaps many more defaults occur than expected, others have fewer defaults than expected. By running so many different lives of the portfolio, EXIM can isolate those times where many more defaults occur and look at the impact. EXIM is also able to put probabilities around the chance that these events could occur. Furthermore, EXIM looks at the results of these scenarios if no recoveries occur. This is an extreme scenario as EXIM regularly recoups more than 50 cents on the dollar after claim payments have been made to financial institutions as a result of borrower non-payment or insurance payouts. Recoveries take time, and this scenario can show what the stressed default rate could reach with no recoveries, albeit temporarily.

For the bottom-up approach, EXIM looks at applicable data from the Federal Reserve’s Comprehensive Capital Analysis and Review adverse and severely adverse scenarios. These scenarios are applied to the largest obligors to determine the adverse scenario’s average risk rating. In doing this, EXIM is able to measure the risk of each obligor similar to a Moody’s or S&P credit rating but using a 1-8 scale. EXIM measures the impact on these obligors under the adverse and severely adverse scenario, resulting in a 1.2 notch and 2.5 notch downgrades, respectively. In effect, this scenario would increase the riskiness for a typical transaction by 30 percent for adverse scenarios and 63 percent for severely adverse scenarios.

<sup>8</sup> *Sound Practices in Credit Portfolio Management*. Ed. Gene D. Guill and Charles Smithson. The International Association of Credit Portfolio Managers. 2005. [www.iacpm.org/about-us/IACPM\\_Sound\\_Practices.pdf](http://www.iacpm.org/about-us/IACPM_Sound_Practices.pdf)

<sup>9</sup> Guo, Lijia. “Effective Stress Testing in Enterprise Risk Management.” (2008). <https://soa.org/library/monographs/other-monographs/2008/april/mono-2008-m-as08-1-guo.pdf>



Next, EXIM runs another 20,000 trial simulations of the entire portfolio based on the results of the obligor specific stress tests, each obligor is downgraded by two notches. This effectively moves an A1 rated credit to a Baa3 credit or a Baa3 to a Ba3 on the Moody's scale. These scenarios allow EXIM to look at its risk profile from a variety of perspectives and help EXIM ascertain the current risk within the portfolio.

As part of its stress testing process, EXIM reviews its stress testing protocol on an annual basis.

### EXIM STANDARD STRESS TESTING RESULTS

EXIM's standard stress test uses 20,000 trial Monte Carlo simulations to forecast the default rate of the current non-overdue portfolio. This stress test does not forecast what the default rate will be at a specific point in time; rather, it projects a range of potential default rates over the lifetime of the current non-overdue portfolio.

Under the March 2023 baseline forecast, the median default rate for the current non-overdue portfolio is 0.43 percent with a 95 percent confidence level that it will be below 2.31 percent.

Under a stressed scenario where all ratings were downgraded by two BCL notches, the median default rate for the current non-overdue portfolio would increase to 2.19 percent with a 95 percent confidence level that the default rate for this portion of the portfolio would be below 3.99 percent. Finally, under a stressed scenario where none of the defaults were recovered, the median default rate for the current non-overdue portfolio would be 0.96 percent, with a 95 percent confidence level that it would be below 4.72 percent.

In addition to calculating the default percentages for the current non-overdue portfolio, EXIM calculated the total dollar loss of this distribution. Under the baseline forecast, the median loss amount for the current non-overdue portfolio is \$0.29 billion. Under a stressed scenario, in which all ratings were downgraded by two notches, the median loss amount would increase to \$1.51 billion. In a stressed scenario where none of the defaults were recovered, the median loss amount would be \$0.66 billion.

These results are consistent with the last stress test performed at the end of September 2022. The median default rate for the current non-overdue portfolio under the baseline forecast in March 2023 is 0.43 percent, which is slightly higher than the 0.39 percent median rate for September 2022. The relatively consistent March rate reflects the stabilization of the portfolio as EXIM has successfully restructured transactions that were adversely impacted by the COVID-19 pandemic.

Current Non-Overdue Portfolio: Base Scenario & Standard Stressed Scenario						
(Amounts in USD Billions)						
	Median		Average		95 Percentile	
	Percent	Amount	Percent	Amount	Percent	Amount
Total	0.43%	\$0.29	0.80%	\$0.55	2.31%	\$1.59
No Recoveries	0.96%	\$0.66	1.67%	\$1.16	4.72%	\$3.26
Downgrade 2 Notches	2.19%	\$1.51	1.91%	\$1.32	3.99%	\$2.76

Next, EXIM simulated how the above stress test results would affect EXIM's overall default rate, which was 1.149 percent at the end of March 2023. EXIM ran the base case, Downgrade Two Notches, and No Recoveries stress test scenarios to incorporate all transactions in EXIM's active portfolio. The

portfolio data and stress test protocols otherwise remain unchanged from the scenario descriptions above.

<b>Active Portfolio: Base Scenario &amp; Standard Stressed Scenario</b>						
<i>(Amounts in USD Billions)</i>						
	<u>Median</u>		<u>Average</u>		<u>95 Percentile</u>	
	Percent	Amount	Percent	Amount	Percent	Amount
Total	0.70%	\$0.49	1.06%	\$0.74	2.56%	\$1.78
No Recoveries	1.33%	\$0.93	2.03%	\$1.41	5.04%	\$3.50
Downgrade 2 Notches	2.46%	\$1.71	2.18%	\$1.51	4.28%	\$2.97

Under the base scenario, the median simulated default rate declined from the current overall default rate (1.149 percent) to 0.70 percent (reflecting expected recoveries over the life of the portfolio), the average simulated default rate would decline to 1.06 percent, and there is a 95 percent confidence level that the default rate would be below 2.56 percent. Under both stressed scenarios (i.e., No Recoveries and Downgrade Two Notches), the simulated default rates for the average and the 95 percent confidence level exceeded the two percent statutory threshold, which would immediately freeze EXIM's lending cap. The No Recoveries median is below two percent, while the Downgrade Two Notches simulation's median is above two percent.

## INDUSTRY IMPACT ANALYSIS

EXIM periodically stress tests different industries with large portfolio exposure. For this report, EXIM stressed its credits in the Oil & Gas sector, the industry with the second highest exposure as of March 31, 2023 (Aircraft, EXIM's largest industry was repeatedly stress tested in 2022 and in previous years). As part of the stress test, EXIM downgraded the risk rating of Oil & Gas transactions (i.e., increasing the BCL by 2), simulating the potential deterioration of credit quality for this critical industry and the impact on the portfolio's potential losses.

The execution of this stress scenario follows the same protocol outlined in the "Stress Tests" section of this report, and the portfolio is run through 20,000 Monte Carlo simulations to create a distribution of potential losses.

### Industry Stress Scenario – Results

By applying the risk rating parameters discussed above, the expected default rate (i.e., the median value of all the simulations) for the current non-overdue portfolio would be 0.43 percent with a 95 percent confidence level that it will be below 2.30 percent. This represents no change from the base case scenario's median default rate for the current non-overdue portfolio percent discussed in the "Stress Test" section. This is primarily driven by the relatively small number of credits in the Oil & Gas industry (which tend to be fairly large in volume).

Additionally, in a scenario where the parameters are applied, and EXIM does not make any recoveries on the defaults, the median default rate for the current non-overdue portfolio would be 0.96 percent with a 95 percent confidence level that it would be below 4.71 percent. As discussed in the EXIM Stress Testing Protocol section, a "no recoveries" scenario is an extreme scenario in the long-term given EXIM's historical recovery experience. This stress scenario, however, shows the potential temporary impact on the default rate after EXIM pays a claim but before recovery efforts are completed.

Historically, EXIM recoups more than 50 cents for every dollar paid out in claims. The results of these scenarios are provided in the table below.

Current Non-Overdue Portfolio Oil & Gas Stress Scenario (Amounts in USD Billions)						
	Median		Average		95 Percentile	
	Percent	Amount	Percent	Amount	Percent	Amount
Total	0.43%	\$0.30	0.79%	\$0.55	2.30%	\$1.59
No Recoveries	0.96%	\$0.66	1.67%	\$1.15	4.71%	\$3.25

Next, EXIM simulated how the above stress tests results would affect EXIM's overall default rate, which was 1.149 percent at the end of March 2023. EXIM again used risk rating parameters as described above. In this scenario, EXIM's median overall default rate would rise slightly to 1.28 percent with a 95 percent confidence level it would be below 3.07 percent. Assuming that no recoveries are made, the median default rate rises to 2.53 percent with a 95 percent confidence level it would be below 6.09 percent.

Active Portfolio Oil & Gas Stress Scenario (Amounts in USD Billions)						
	Median		Average		95 Percentile	
	Percent	Amount	Percent	Amount	Percent	Amount
Total	1.28%	\$0.89	1.67%	\$1.16	3.07%	\$2.13
No Recoveries	2.53%	\$1.76	3.24%	\$2.25	6.09%	\$4.23

While EXIM is currently within the parameters of the two percent default rate, it is closely monitoring its credits and defaults and, if necessary, taking proactive measures to manage the portfolio.