DEFAULT RATE REPORT

AS OF
DECEMBER 2018

EXPORT-IMPORT BANK
OF THE UNITED STATES

FISCAL YEAR 2019 (Q1) DEFAULT EXPERIENCE
EXPORT-IMPORT BANK OF THE UNITED STATES

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Executive Summary

Mission

The mission of the Export-Import Bank ("EXIM" or "Bank") is to enable U.S. companies of all sizes to turn export opportunities into sales that maintain and create U.S. jobs and contribute to a stronger national economy. The Bank achieves this mission by providing export financing through its loan, guarantee, and insurance programs in cases where the private sector is unable or unwilling to provide financing. EXIM helps level the playing field for U.S. exporters that are in competition with foreign companies supported by financing from their official foreign export credit agencies (ECA).

Statutory Requirement

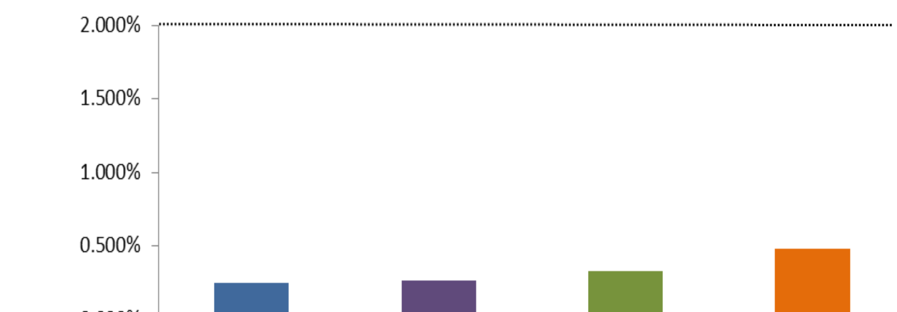
As mandated, EXIM continues to report on its default rate, as defined in Section 8 of the Charter, on a quarterly basis corresponding to the quarters of the fiscal year. This report is as of December 2018 and is based on annually audited financial data.[1]

> *"(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."*

Default Rate

The default rate[2] of the Export-Import Bank through December 31, 2018, is **0.482 percent** as shown in Exhibit 1. This rate reflects a "total amount of required payments that are overdue" (claims paid on guarantees and insurance transactions plus loans past due) equal to $568.6 million divided by a "total amount of financing involved" (disbursements) equal to $118.0 billion.[3] This financing amount is different from EXIM's current exposure because it includes repayments and excludes authorized amounts that have yet to disburse.

Exhibit 1: Default Rate



	Dec. 2015	Dec. 2016	Dec. 2017	Dec. 2018
Default Rate	0.248%	0.264%	0.329%	0.482%
Amount Overdue	340,781,492	351,696,422	418,297,941	568,594,723
Total Financing	137,689,130,835	133,313,921,356	126,960,988,224	117,963,477,744

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[1] The data used to produce this report is generated from the financial management system and the same source accounting systems that produced the Bank's previous annual audited financial statements. Although the external auditors do not express an opinion on the effectiveness of the Bank's systems, the data used to support the financial statements is tested for accuracy on a sample basis. The Bank has received an unqualified opinion since 1989 regarding the presentation of the Bank's financial statements.

[2] This default rate is different than the default rates published in the annual Budget Appendix due to differing definitions. 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 particular point in time.

[3] The default rate is based on disbursements (not authorized amounts.)

Default Rate

Congressional Intent

In discussions with the House Financial Service Committee related to the requirement on the monitoring of the default rate, committee members cited former Chairman Fred Hochberg's testimony as the type of information required by this provision. In his testimony on May 24, 2011 before the committee, Chairman Hochberg stated "as a result of our diligent review and management of credit, the Bank has a loan loss rate[4] [default rate] of roughly 1.5 percent – well below most commercial banks." This report is produced in a manner consistent with the metric provided in the Chairman's testimony.

Defined

$$\frac{\text{Overdue Payments} = \text{Defaults Paid} + \text{Expenses} - \text{Recoveries}}{\text{Total Financing} = \text{Disbursements (Active)}}$$

Section 8 of the Charter mandates that EXIM calculate the "*default on a payment obligation… by dividing the total amount of the required payments that are overdue by the total amount of the financing involved.*" 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 the Bank's active portfolio. For guarantees and insurance transactions, upon default of a payment obligation[5], EXIM pays a claim to the guarantors or the insured parties. As this report is based on the Bank's portfolio through December 2018, all expenses incurred related to the Bank's recovery efforts are added to the amount overdue. Recoveries to that point reduce the amount overdue in connection to the specific claim paid or the loan in arrears. All recovered amounts are discounted to the time of claim payment or when the direct loan went into arrears. The "total amount of financing involved," the denominator, is defined as the disbursed[6] financing under the Bank's programs to support U.S. exports. After a credit is approved, the value of the goods and services financed by EXIM is recorded once they are delivered (or disbursed) to the buyer. Depending on the type of goods and services financed, the delivery (or disbursement) can occur over a period of years.

Active Portfolio

EXIM's credits have a defined repayment schedule that generally ranges from one year to 15 years or more. Most credits have quarterly or semi-annual repayment terms; however, repayment terms can vary among EXIM's programs and products. A disbursed loan, guarantee, or insurance policy that has a repayment schedule where the final repayment date is after the date of this report is included as part of the active portfolio. Any installment due within the repayment schedule up to the date of this report that has not

> ***Active Credit Example****: A long term guarantee authorized in FY 2009 with a 10 year repayment term (the deal matures in FY 2019)*
>
> ***Inactive Credit Example****: A long term guarantee in FY 1994 with a 10 year repayment term (the deal matured in FY 2004).*

[4] The loan loss rate does not include the fees that the Bank charges for the transaction that it finances.
[5] Upon receipt of request for a claim payment by the lending institution, EXIM performs claim procession functions.
[6] Disbursements include loans, guarantees, and insurance.

been paid is considered to be in default.

On the Bank's active portfolio, a total of $118.0 billion of goods and services[7] have been delivered to foreign buyers of American-made products. These products are supported by EXIM's loan, guarantees, and insurance programs. Of this amount, the Bank has gross defaults of $597.1 million, incurred expenses related to those payments of $0.9 million, and recovered $29.4 million for net defaults of $568.6 million. This results in a default rate through the time period ending December 2018 equal to 0.482 percent.

Exposure

EXIM's exposure differs from the total financing amount because it includes repayments and authorized amounts that have yet to disburse. As of December 31, 2018, the Bank's exposure stood at $56.7 billion.[8] The Bank's Charter stipulates that the Bank shall not have an exposure exceeding $135.0 billion. Additionally, Section 6(a) of the Charter requires:

> *"(3)* ***Freezing of lending cap if default rate is 2 percent or more****. If the rate calculated under section 8(g)(1) 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 8(g)(1) is less than 2 percent."*

As of December 31, 2018, the default rate is 0.482 percent, which is below the 2 percent threshold identified in Section 6(a) of the Charter. With the current default rate below 2 percent, EXIM's current lending cap remains $135.0 billion.

Reserves

Section 6(b) of the Charter requires EXIM Bank to maintain a certain level of reserves to protect against future losses.

> *"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.*

The total reserves for EXIM as of September 30, 2018 equaled $3.7 billion, which was 6.4 percent of outstanding exposure ($58.0 billion).

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[7] This includes local costs, capitalized interest during construction, and foreign content derived from co-financing and short-term commitments.

[8] The exposure amount is subject to change pending the completion of EXIM Bank's annual financial audit at the close of the fiscal year.

DEFAULT RATE

DEFAULT RATE: *BY SUBCATEGORY*

Section 8 of the Charter requires:

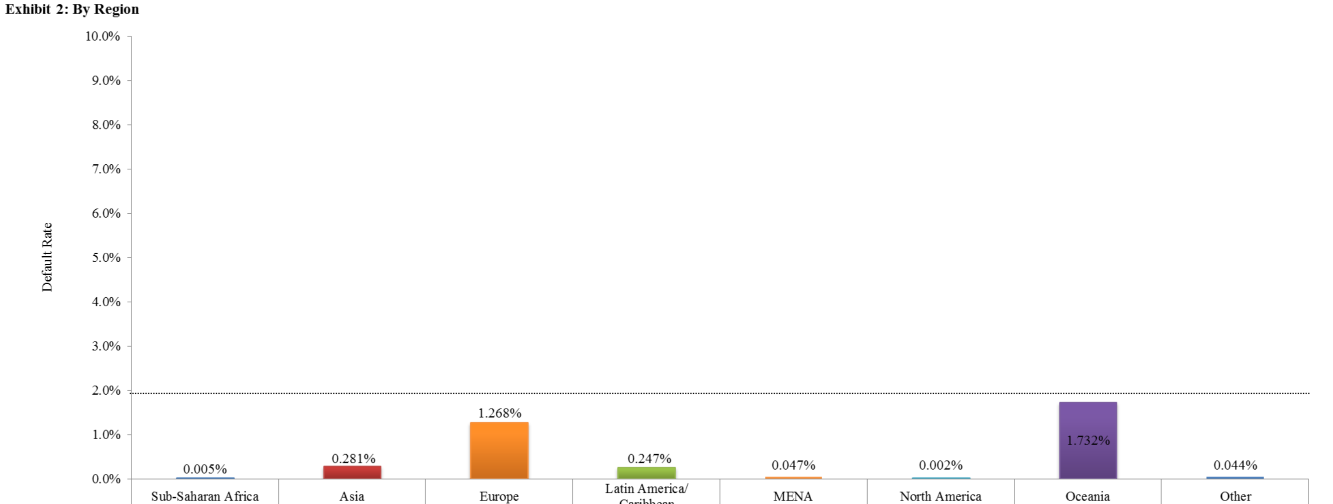
> *"(2) ADDITIONAL CALCULATION BY TYPE OF PRODUCT, BY KEY MARKET, AND BY INDUSTRY SECTOR; REPORT TO CONGRESS.—"*

As mandated by the Charter, EXIM has calculated default rates based on each subcategory as of December 31, 2018.

BY REGION

EXIM breaks out its transactions into seven regions: Africa, Asia, Europe, Latin America/Caribbean, Middle East/North Africa (MENA), North America, Oceania, and other. As shown in Exhibit 2, EXIM's default rate is below 2 percent within each of these regions.

Exhibit 2: By Region

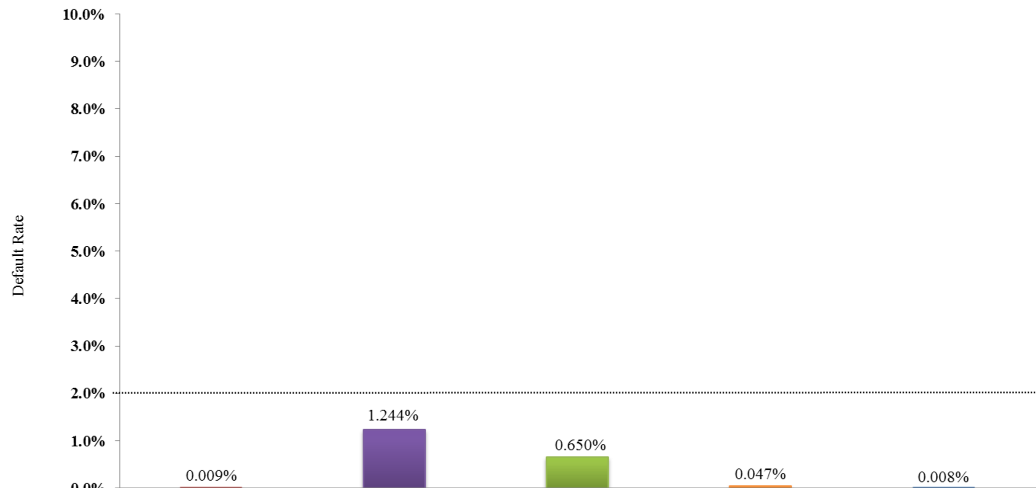


	Sub-Saharan Africa	Asia	Europe	Latin America/ Caribbean	MENA	North America	Oceania	Other
Amount Overdue	$349,808	$88,478,079	$275,188,208	$56,879,172	$8,122,090	$166,216	$138,759,380	$651,771
Total Financing	$6,395,444,704	$31,435,542,749	$21,695,018,891	$23,017,241,621	$17,365,470,364	$8,578,238,681	$8,010,700,075	$1,465,820,660
Default Rate	0.005%	0.281%	1.268%	0.247%	0.047%	0.002%	1.732%	0.044%

BY PRODUCT LINE

EXIM's loans, guarantees, and insurance program are broken out by separate product lines: Long Term Transportation, Long Term Project/Corporate, Medium Term, Short Term Insurance, and Working Capital Guarantees. In general, Short Term Insurance and Working Capital Guarantees transactions are less than 1 year, Medium Term transactions are between 1 and 7 years and under $10 million and finally, Long Term Transportation and Project/Corporate transactions are all transactions that are over 7 years and all transactions one year or longer that are also $10 million and above.

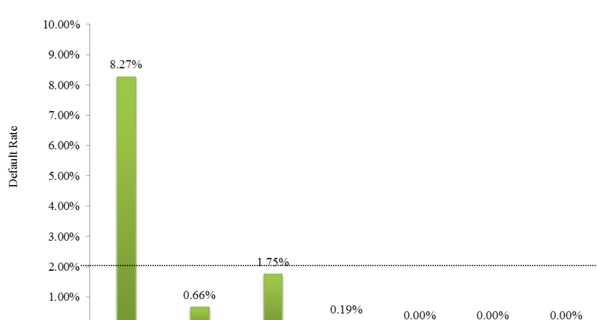
Exhibit 3: By Product Line



	LT Transportation	LT Project/Corporate	Medium-Term	ST Insurance	Working Capital
Amount Overdue	$6,173,746	$554,446,346	$7,023,514	$829,481	$121,636
Total Financing	$69,001,180,920	$44,580,061,835	$1,080,909,431	$1,783,785,289	$1,517,540,268
Default Rate	0.009%	1.244%	0.650%	0.047%	0.008%

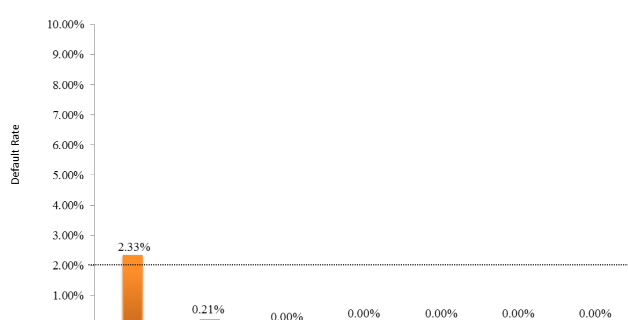
As shown in Exhibit 3, all products have a default rate below 2 percent. In previous reports, the Bank's default rate for the medium-term guarantees and insurance transactions were more than 2 percent. The Bank has and continues to take steps to improve the medium-term portfolio. First, the Bank has moved to using underwriting standards similar to those of the long-term portfolio, which includes – but is not limited to – requiring collateral. The Bank has also established a monitoring group for this portfolio to proactively restructure distressed deals and prevent defaults or enhance recoveries. Finally, the Office of the Inspector General has significantly increased actions against those who attempt to defraud the Bank. As a result of the Bank's actions, the default rates for both Medium Term Guarantee and Medium Term Insurance products have declined from 7.13 percent and 9.40 percent, respectively, in June 2012, to 0.195 percent and 0.000 percent, respectively, as of December 31, 2018. Medium Term Guarantees and Insurance represent 0.92 percent of the total amount of EXIM financing.

Exhibit 4: Medium Term Guarantees (Recent Cohorts)



	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Amount Overdue	$3,031,697	$10,936,041	$14,604,769	$2,367,517	$3,146,726	$270,396	$-
Total Financing	$548,725,925	$320,367,239	$151,007,010	$221,205,728	$120,614,006	$143,774,683	$71,749,530
Default Rate	8.27%	0.66%	1.75%	0.19%	0.00%	0.00%	0.00%

Medium Term Insurance (Recent Cohorts)



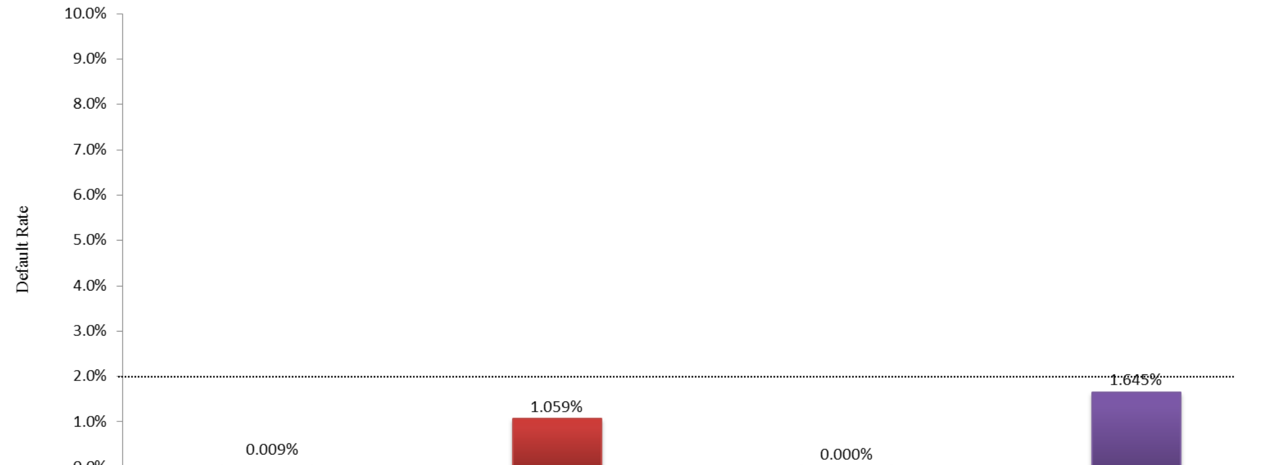
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Amount Overdue	$5,168,596	$4,519,895	$2,491,584	$229,922	$-	$-	$-
Total Financing	$142,160,638	$142,884,821	$106,878,303	$83,350,946	$59,458,451	$29,725,431	$11,354,118
Default Rate	2.33%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%

After implementing the above-referenced changes in underwriting and monitoring practices, the medium-term portfolio's default rate improved dramatically. For medium-term products, defaults normally occur by the third year. This means authorizations since FY 2012 act as an appropriate proxy for future trends in the medium-term products. As shown in Exhibit 4, for all transactions approved since FY 2012, the medium-term portfolio, including both active and matured transactions, default rates have, on average, dropped below 2 percent.

By Industry

EXIM's four largest industries are: Air Transportation, Manufacturing, Oil & Gas, and Power Projects.[9] Although these sectors account for 88.0 percent of the total amount of EXIM financing, they have experienced a default rate below 2 percent as shown in Exhibit 5.

Exhibit 5: By Industry

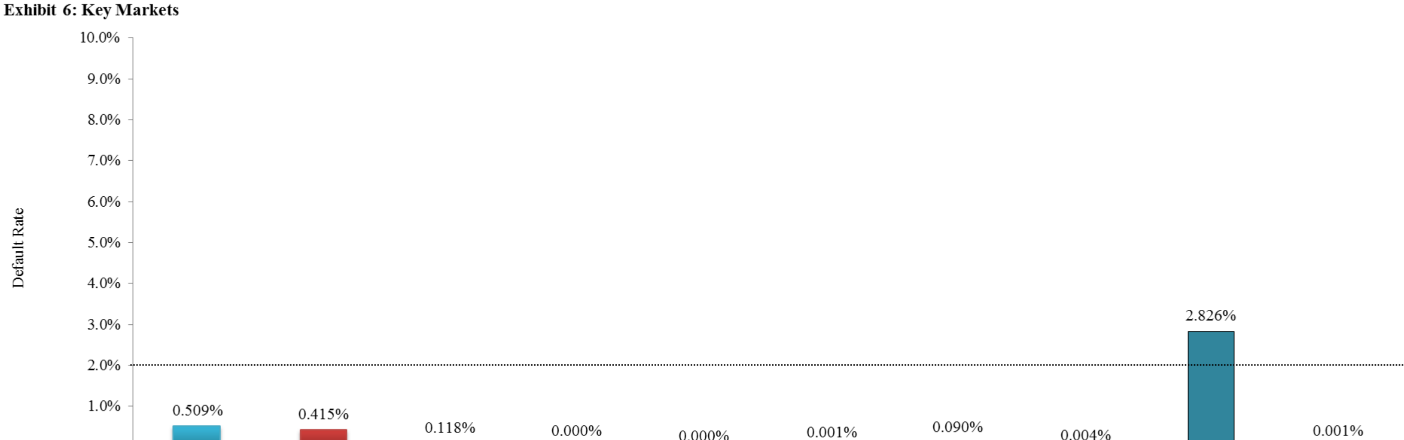


	Air Transportation	Manufacturing	Oil & Gas	Power Projects
Amount Overdue	$6,173,746	$148,373,521	$26,881	$71,521,706
Total Financing	$69,063,244,878	$14,012,249,990	$16,377,232,708	$4,348,732,616
Default Rate	0.009%	1.059%	0.000%	1.645%

By Key Markets

EXIM has exposure in more than 160 countries as of December 31, 2018. As shown in Exhibit 6, the top ten markets, except for Australia, have experienced a default rate well below 2 percent.[10] The default rate for Australia is primarily driven by one relatively large default compared to the total financing.

Exhibit 6: Key Markets



	Mexico	India	Saudi Arabia	United Arab Emirates	China	Ireland	Turkey	Korea, South	Australia	Brazil
Amount Overdue	$55,927,082	$34,714,634	$8,061,779	$0	$2,359	$49,148	$4,854,650	$215,629	$138,759,380	$53,159
Total Financing	$10,989,545,837	$8,371,438,397	$6,840,274,499	$6,659,111,201	$6,406,281,919	$5,958,717,018	$5,367,664,066	$5,067,806,797	$4,909,936,141	$4,108,073,598
Default Rate	0.509%	0.415%	0.118%	0.000%	0.000%	0.001%	0.090%	0.004%	2.826%	0.001%

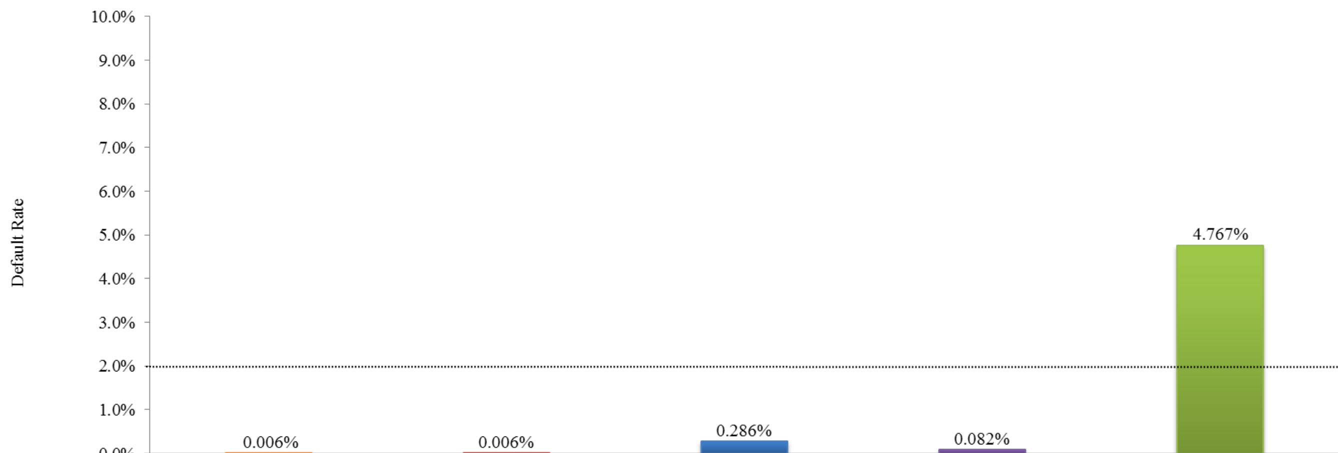
[9] Formerly named "Aircraft", "Mining – Oil & Gas" and "Utilities – Power Projects" respectively.

[10] The 10 key markets reflect top ten markets by total financing.

Default Rate: *By Mandate*

EXIM has congressional mandates to support Small Business, Environmentally Beneficial, and Sub-Saharan Africa transactions. Transactions consistent with these mandates account for 10.8 percent of the total amount of EXIM financing. All mandates, except for environmentally beneficial transactions, have experienced a default rate below 2 percent as shown in Exhibit 7. The default rate in the environmental program is primarily driven by one relatively large default compared to the total financing.

Exhibit 7: Mandates



	Sub-Saharan Africa	100% Sub-Saharan Africa	Small Business	100% Small Business	Environmentally Beneficial
Amount Overdue	$350,708	$349,808	$15,533,797	$2,927,338	$68,227,581
Total Financing	$5,817,989,528	$5,788,857,129	$5,440,865,360	$3,563,394,849	$1,431,251,126
Default Rate	0.006%	0.006%	0.286%	0.082%	4.767%

Note: "Sub-Saharan Africa" and "Small Business" categories includes 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 (1) ability to make payments, as indicated by relevant economic factors and (2) willingness to pay, as indicated by payment record and political and social factors. Four categories, ratings 1 through 4, are roughly equivalent to "creditworthy" or "investment grade" private bond ratings. Three categories, 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. EXIM does not use the BCL scale for the working capital and multi-buyer products that 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 3.72, corresponding to an investment grade portfolio. In the chart below are the weighted average BCL for the various Bank mandates.

Category	Budget Cost Level
Sub-Saharan Africa	5.04
100% Sub-Saharan Africa	5.04
Small Business	3.53
100% Small Business	4.01
Environmentally Beneficial	4.02
Active Portfolio	3.72

Aging Report

Aging Report: Summary

The Aging Report covers medium- and long-term credits that have principal payments in arrears that are not otherwise covered in the default rate. For insurance and guarantees, the aging report captures overdue principal payments for which the Bank has not paid a claim. Loan arrears account for principal payments that have been in arrears for less than 30 days. Principal payments that have been in arrears for more than 30 days are captured in the default rate. As of December 31, 2018, a total of approximately $3.4 million in principal payments for medium- and long-term guarantee and insurance credits are in arrears. Approximately $30.6 million in loan principal payments have been in arrears for less than 30 days.

76% of Insurance & Guarantee Arrears are Cured

Historically, a large majority of principal arrears are eventually cured (i.e. payment is received.) Since FY 2013, on average, 76 percent of insurance and guarantee arrears have been cured.

Credits in Arrears

Guarantees & Insurance in Arrears

Days Overdue	Amount Overdue
Less Than 30 Days	$57,109
30 to 60 Days	$333,651
60 to 90 Days	$786,742
90 to 150 Days	$2,231,951
Total	**$3,409,454**

Loans in Arrears

Days Overdue	Amount Overdue
Less Than 30 Days	$30,605,387
30 to 60 Days	N/A
60 to 90 Days	N/A
90 Days or More	N/A
Total	**$30,605,387**

Insurance & Guarantees

As of December 31, 2018, $3.4 million in principal payments for medium- and long-term insurance and guarantees are in arrears, and $57,109 worth of principal payments (or 1.7 percent of total arrears) is less than 30 days overdue.

Direct Loans

As of December 31, 2018, approximately $30.6 million of principal installments were in arrears for less than 30 days for active direct loans.

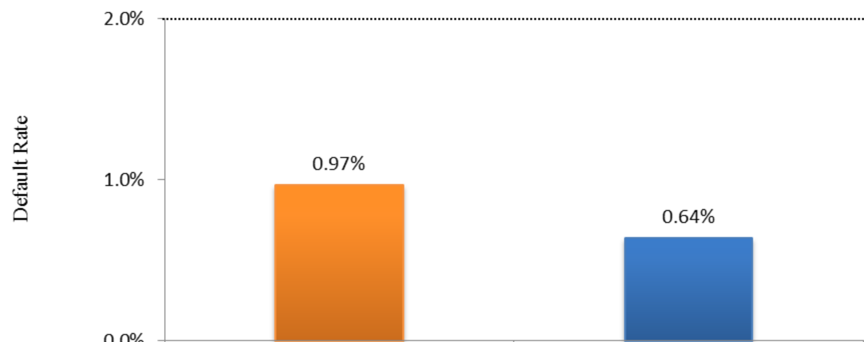
HISTORICAL DEFAULT RATES

HISTORICAL DEFAULT RATE

Since EXIM was first established in 1934, the Bank has disbursed $496.9 billion in guarantees, insurance, and direct loans. On all of EXIM's disbursements, the Bank has defaults[11] of $13.4 billion and recoveries of $8.6 billion, resulting in a historical default rate of 0.97 percent.

Since the implementation of the Federal Credit Reform Act (FCRA) in 1992, the Bank has disbursed $333.5 billion in guarantees, insurance, and direct loans. Of these disbursements, EXIM has defaults of $6.7 billion and recoveries of $4.5 billion, resulting in a default rate of 0.64 percent. The Bank has historically collected more than 50 cents on the dollar for claims paid. EXIM's historical default rates since 1934 and since 1992 are highlighted in Exhibit 8.

Exhibit 8: Historical Default Rate



	Since Inception (1934 - Dec. 31, 2018)	Since Credit Reform (1992 - Dec. 31, 2018)
Amount Overdue	$4,818,150,510	$2,137,492,939
Total Financing	$496,986,633,684	$333,497,890,267
Default Rate	0.97%	0.64%

COMPONENTS OF HISTORICAL DEFAULT RATE: *CALCULATION*

	Since Inception (1934 - Dec. 31, 2018)	Since Credit Reform (1992 - Dec. 31, 2018)
Total amount of required payments that are overdue	**$4,818,150,510**	**$2,137,492,939**
Defaults	13,370,115,254	6,677,797,840
Less Recoveries	8,551,964,745	4,540,304,901
Total amount of financing involved	**$496,986,633,684**	**$333,497,890,267**
Disbursements	496,986,633,684	333,497,890,267
Default Rate	**0.97%**	**0.64%**

[11] This includes claims paid on guarantees and insurance transactions as well as direct loans in arrears and write-offs. It also includes non-discounted recovery amounts, but does not include any recovery expenses as that data was not available for this time frame.

Stress Tests

In addition to measuring the current default rate, EXIM also examined the current portfolio to measure the future default rate under stressed scenarios. EXIM performs regular stress testing of its portfolio to identify how the current portfolio may perform in the future under stressed scenarios. As the Basel Committee on Banking Supervision states, "Stress testing is an important risk management tool that is used by banks as part of their internal risk management." The following section describes what stress testing is, why it is important, how to do stress testing, EXIM stress test protocol, and recent results from EXIM's stress tests.

What is Stress Testing?

The Federal Deposit Insurance Corporation has defined stress testing as "a forward-looking quantitative evaluation of stress scenarios that could impact a banking institution's financial condition and capital adequacy."[12] 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."[13] 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, the Bank's stress testing builds capacity to understand the Bank's risks and the potential impact of stressful events and circumstances on the Bank's financial condition. Stress testing is an important tool for portfolio management and risk mitigation. Furthermore, the International Monetary Fund has stated: "Stress testing has become an essential and very prominent tool in the analysis of financial sector stability and development of financial sector policy."[14] The World Bank has concurred, stating, "Regular stress testing of the financial system is the main tool of macroprudential monitoring."[15] 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."[16] Based on industry best practices and EXIM's commitment to a comprehensive risk management framework the Bank has implemented a stress testing protocol.

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[12] 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

[13] 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/bankinforeg/srletters/sr1207a1.pdf

[14] "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

[15] 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

[16] "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:[17]

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.
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.

This paper was also cited in the EXIM Inspector General's report on the Bank's portfolio risk as a model to follow.

EXIM Stress Testing Protocol

EXIM looked 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 the Bank decided to use a Monte Carlo simulation approach, consistent with best practice. This approach allows the Bank 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."[18] This allows the Bank to use a forward looking approach that looks at numerous scenarios. The simulation takes every transaction in the Bank's exposure and simulates whether it defaulted or not during the remainder of its term, based on the Bank's most current loss rate model. In the default simulation, the total default amount less recoveries is calculated. This loss rate model was recently reviewed by the Government Accountability Office and the Office of Management and Budget, as well as audited by Deloitte & Touche and KPMG. Each portfolio simulation takes every transaction and sums their respective default amounts. The total is the Bank's loss for that simulation. The Bank then runs this same simulation 20,000 times to create a distribution of possible losses. There are a variety of outcomes and by creating a distribution it allows the Bank to look at the extreme tails of the distribution to see how the portfolio performs at its worst. This basically means that the Bank 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 the Bank can isolate those times where many more defaults occur and look at the impact. The Bank is also able to put probabilities around the chance that these events could occur. Furthermore, the Bank looked at the results of these scenarios if NO recoveries occur. This is an extreme scenario as the Bank regularly collects more than 50 cents on the dollar for claims paid. Recoveries do take time and this scenario can show what the stressed default rate could reach with no recoveries, albeit temporarily.

Next, for the bottom-up approach, the Bank looked at some of its largest obligors and using applicable data from the Federal Reserve's Comprehensive Capital Analysis and Review (CCAR) adverse and severely adverse scenarios. These scenarios were applied to the particular obligors and for the adverse scenario the average risk rating, which measure the risk of each obligor similar to a Moody's or S&P credit rating but using a 1-8 scale. The Bank measured the impact on these obligors under the adverse and severely adverse scenario, resulting in a 1.2

[17] *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
[18] 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

notch and 2.5 notch downgrades, respectively. In effect, this would increase the riskiness for a typical transaction by 30 percent for adverse scenarios and 63 percent for severely adverse scenarios.

Next, the Bank ran another 20,000 trial simulations of the entire portfolio, but this time, based on the results of the obligor specific stress tests, each obligor was 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 various scenarios allow the Bank to look at its risk profile from a variety of perspectives and helps the Bank ascertain the current risk within the portfolio.

EXIM Stress Testing Results

The results of the Bank's 20,000 trial Monte-Carlo simulations can be seen in the table below. The default rate at end of September 2018 was 0.447 percent. Under the baseline forecast the median default rate for the current non-overdue portfolio is 0.36 percent with a 95 percent confidence level that it will be at 1.35 percent or lower. Under a stressed scenario where all of the ratings were downgraded by 2 notches, the median default rate would increase to 0.83 percent with a 95% confidence level that the default rate would be below 2.01 percent. Finally, under a stressed scenario where none of the defaults were ever recovered the median default rate would be 0.74 percent, with a 95 percent confidence level that it would be below 2.76 percent.

Additionally the Oceania portfolio was stress tested. Under the baseline forecast for the current Oceania portfolio the median default rate is 0.52 percent. This rate increases to 10.27 percent at the 95 percent confidence level as there are few but very large borrowers in the region.

In addition to calculating the percentages, which is on the same scale as the default rates discussed earlier in this report, the Bank calculated the total dollar loss of this distribution. The amount overdue for the portfolio at the end of September 2018 is $0.54 billion. Under the baseline forecast the median loss amount for the current non-overdue portfolio is $0.41 billion. Under a stressed scenario where all of the ratings were downgraded by 2 notches, the median loss amount would increase to $0.94 billion, and a stressed scenario where none of the defaults were ever recovered the median loss amount would be $0.85 billion. For Oceania portfolio, the median loss amount would be $0.04 billion.

	Median		**Average**		**95 Percentile**	
	Percent	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**
Total	0.36%	$0.41	0.49%	$0.56	1.35%	$1.55
No Recoveries	0.74%	$0.85	1.01%	$1.15	2.76%	$3.15
Downgraded 2 Notches	0.83%	$0.94	0.99%	$1.13	2.01%	$2.30
Oceania	0.52%	$0.04	1.29%	$0.16	10.27%	$0.82

($billions)

These results are a reduction in risk compared to the results from the last stress test performed at the end of September 2017, given that the portfolio has not added new large transactions, the current transactions have been repaying leading to a reduction in exposure, and the risk profile of the portfolio has not markedly changed year-over-year. The median under the baseline forecast in September 2018 is 0.36 percent compared to 0.40 percent in September 2017.

EXIM Future Stress Testing

EXIM Bank is committed to continuous improvement and works to improve its stress testing. The Bank stress tested the aircraft portfolio in Q4 FY 2014, the Latin America/Caribbean portfolio in Q4 FY 2015, the European portfolio Q2 FY 2016, the Oil & Gas portfolio in Q4 FY 2016, the Asia portfolio in Q2 FY 2017, the long term non-aircraft portfolio in Q4 2017, and the Middle East and North Africa portfolio in Q2 2018. The Bank will continue to look into other industries and regions where it has large exposures. The Bank used the definition of a large exposure from the Basel Committee's Core Principles for Effective Banking Supervision. In those core principles the committee states, "ten per cent or more of a bank's capital is defined as a large exposure." The Bank will be able to see if certain industries or region have a higher risk profile in the tails of its distribution along with its expected default rate. The Bank is also looking into the impact of correlation within industries and regions it is concentrated. These tests will inform the Bank as to the extent of this impact on potential future losses. During the year the Bank will look for additional ways to improve its stress testing methodology. The Bank will continue to report the results of these future stress test scenarios to the U.S. Congress.

APPENDIX

COMPONENTS OF DEFAULT RATE: *DISBURSEMENTS*

Under the direct loan program the goods and services are financed directly by EXIM. Funds are disbursed to the supplier to pay for the goods or services delivered to the buyer and a loan receivable with appropriate loss reserves are reflected on the Bank's books.

Under the guarantee and insurance programs, the private sector provides the financing and the transaction is guaranteed or insured by EXIM. The guaranteed or insured party notifies EXIM when a shipment of goods has occurred and EXIM records a non-cash "disbursement" to reflect the value of the goods guaranteed by EXIM. An appropriate loss reserve is also recorded on the Bank's books.

As of December 2018, on the Bank's active portfolio, a total of $118.0 billion of goods and services have been delivered to foreign buyers and supported by EXIM under the loan, guarantee and insurance programs.

COMPONENTS OF DEFAULT RATE: *GROSS DEFAULTS*

EXIM pays claims honoring the terms of either the guarantee or the insured transaction. On EXIM's active portfolio, the Bank has paid out $155.2 million in claims. For loans, all monies past due are considered defaults. As of December 2018, for the active portfolio, $441.9 million is past due. This totals $597.1 million in claims paid and overdue loans.

The gross default rate is derived from the amounts paid on guarantees and insurance transactions as well as past due loan installments divided by the amount disbursed. This rate does not include the money recovered or related recovery expenses. On the $118.0 billion of disbursements, the Bank has gross defaults of $597.1 million, resulting in a default rate of 0.506 percent.

COMPONENTS OF DEFAULT RATE: *RECOVERIES AND EXPENSES*

EXIM has an active recovery group that seeks to recuperate on losses related to claim payments and non-performing loans. On EXIM's active portfolio, the Bank has recovered $29.4 million and incurred $0.9 million of expenses related to the recovery process.[19] These recoveries, as well as fees collected from borrowers, are used to offset claims paid. The Bank expects to recover additional amounts on these transactions in future years.

COMPONENTS OF DEFAULT RATE: *CALCULATION*

Total amount of required payments that are overdue	**$568,594,723**
Gross Defaults Paid	597,092,503
Expenses	867,231
Less Recoveries	29,365,011
Total amount of financing involved	**$117,963,477,744**
Disbursements	117,963,477,744
Default Rate	**0.482%**

[19] For the purpose of calculation of the default rate, the amounts recovered are discounted to the time of claim payment.

Default Rate: *By Country*

	Financing	Claim Paid	Recovery	Expenses	Overdue	Default
Asia	**31,435,542,749**	**89,786,626**	**1,587,047**	**278,500**	**88,478,079**	**0.28%**
Bangladesh	572,206,249	-	-	-	-	0.00%
Burma	4,813,980	-	-	-	-	0.00%
Cambodia	298,238	-	-	-	-	0.00%
China	6,406,281,919	-	-	2,359	2,359	0.00%
Hong Kong	3,775,492,497	-	-	-	-	0.00%
India	8,371,438,397	36,241,169	1,587,047	60,512	34,714,634	0.41%
Indonesia	1,708,908,473	10,955,099	-	-	10,955,099	0.64%
Japan	279,335,509	-	-	-	-	0.00%
Kazakhstan	213,452,475	-	-	-	-	0.00%
Korea, South	5,067,806,797	-	-	215,629	215,629	0.00%
Laos	180,000	-	-	-	-	0.00%
Mongolia	384,646,393	-	-	-	-	0.00%
Nepal	90,250	-	-	-	-	0.00%
Pakistan	516,913,642	42,590,358	-	-	42,590,358	8.24%
Philippines	555,968,063	-	-	-	-	0.00%
Singapore	1,887,913,980	-	-	-	-	0.00%
Sri Lanka	85,816,339	-	-	-	-	0.00%
Tajikistan	80,000,000	-	-	-	-	0.00%
Thailand	946,975,093	-	-	-	-	0.00%
Vietnam	577,004,452	-	-	-	-	0.00%
Europe	**21,695,018,891**	**302,430,111**	**27,361,019**	**119,116**	**275,188,208**	**1.27%**
Albania	36,737,164	-	-	52,233	52,233	0.14%
Austria	106,567,959	-	-	-	-	0.00%
Azerbaijan	590,424,916	-	-	-	-	0.00%
Belgium	11,189,344	-	-	-	-	0.00%
Bulgaria	162,198,814	151,594,699	-	-	151,594,699	93.46%
Czech Republic	75,463,915	-	-	-	-	0.00%
Denmark	278,473	-	-	-	-	0.00%
Finland	9,000	-	-	-	-	0.00%
France	343,052	-	-	-	-	0.00%
Germany	1,163,211,462	-	-	-	-	0.00%
Hungary	1,035,200	-	-	-	-	0.00%
Iceland	14,850	-	-	-	-	0.00%
Ireland	5,958,717,018	-	-	49,148	49,148	0.00%
Italy	3,144,168	-	-	-	-	0.00%
Luxembourg	1,735,328,334	-	-	-	-	0.00%
Malta	45,000	-	-	-	-	0.00%
Netherlands	1,056,669,271	-	-	-	-	0.00%
Norway	1,147,465,772	-	-	-	-	0.00%
Poland	489,696,469	-	-	-	-	0.00%
Portugal	18,833	-	-	-	-	0.00%
Romania	6,550,230	-	-	-	-	0.00%

	Financing	Claim Paid	Recovery	Expenses	Overdue	Default
Russia	1,482,053,083	-	-	-	-	0.00%
Serbia	642,600	-	-	-	-	0.00%
Slovak Republic	47,176,274	-	-	-	-	0.00%
Slovenia	8,555,516	-	-	-	-	0.00%
Spain	536,438,444	61,924,352	-	-	61,924,352	11.54%
Switzerland	71,747,662	-	-	-	-	0.00%
Turkey	5,367,664,066	30,623,554	25,786,639	17,735	4,854,650	0.09%
Ukraine	185,617,968	58,287,505	1,574,379	-	56,713,125	30.55%
United Kingdom	1,450,014,032	-	-	-	-	0.00%
Latin America/ Caribbean	**23,017,241,621**	**57,044,051**	**346,722**	**181,842**	**56,879,172**	**0.25%**
Argentina	140,471,097	-	-	-	-	0.00%
Barbados	4,279,879	-	-	-	-	0.00%
Brazil	4,108,073,598	-	-	53,159	53,159	0.00%
Cayman Islands	70,594,977	-	-	-	-	0.00%
Chile	2,575,895,158	-	-	24,702	24,702	0.00%
Colombia	2,938,997,717	676,347	172,447	-	503,900	0.02%
Costa Rica	102,467,174	-	-	-	-	0.00%
Dominican Republic	427,613,203	388,011	105,528	-	282,483	0.07%
Ecuador	3,656,304	-	-	-	-	0.00%
El Salvador	20,251,327	-	-	-	-	0.00%
Guatemala	4,309,289	-	-	-	-	0.00%
Guyana	44,647	-	-	-	-	0.00%
Honduras	190,365,871	-	-	-	-	0.00%
Jamaica	2,353,756	30,483	-	-	30,483	1.30%
Mexico	10,989,545,837	55,949,211	68,747	46,618	55,927,082	0.51%
Nicaragua	6,065	-	-	-	-	0.00%
Panama	820,523,756	-	-	47,756	47,756	0.01%
Paraguay	25,364,001	-	-	-	-	0.00%
Peru	325,491,869	-	-	9,608	9,608	0.00%
St. Vincent And Grenadines	3,334,391	-	-	-	-	0.00%
Trinidad And Tobago	111,534,096	-	-	-	-	0.00%
Uruguay	152,067,608	-	-	-	-	0.00%
Middle East/ North Africa	**17,365,470,364**	**8,050,996**	**-**	**71,094**	**8,122,090**	**0.05%**
Bahrain	31,449	-	-	-	-	0.00%
Egypt	613,213,142	-	-	40,254	40,254	0.01%
Israel	798,509,521	-	-	-	-	0.00%
Jordan	169,800	-	-	-	-	0.00%
Kuwait	625,957,930	-	-	-	-	0.00%
Lebanon	148,500	-	-	-	-	0.00%

	Financing	Claim Paid	Recovery	Expenses	Overdue	Default
Morocco	781,472,823	-	-	-	-	0.00%
Oman	38,581,500	-	-	-	-	0.00%
Qatar	1,008,000,000	-	-	20,057	20,057	0.00%
Saudi Arabia	6,840,274,499	8,050,996	-	10,784	8,061,779	0.12%
United Arab Emirates	6,659,111,201	-	-	-	-	0.00%
North America	**8,578,238,681**	**121,636**	**-**	**44,580**	**166,216**	**0.00%**
Canada	2,298,827,627	-	-	44,580	44,580	0.00%
Private Export Funding Corp.	1,211,278,061	-	-	-	-	0.00%
United States	5,068,132,993	121,636	-	-	121,636	0.00%
Oceania	**8,010,700,075**	**138,759,380**	**-**	**-**	**138,759,380**	**1.73%**
Australia	4,909,936,141	138,759,380	-	-	138,759,380	2.83%
New Zealand	496,184,572	-	-	-	-	0.00%
Papua New Guinea	2,604,579,363	-	-	-	-	0.00%
Sub-Saharan Africa	**6,395,444,704**	**177,710**	**-**	**172,098**	**349,808**	**0.01%**
Angola	758,166,448	-	-	8,071	8,071	0.00%
Cameroon	97,548,120	-	-	-	-	0.00%
Cote D'Ivoire	270,000	-	-	-	-	0.00%
Ethiopia	2,144,493,541	-	-	-	-	0.00%
Gabon	10,762,005	-	-	-	-	0.00%
Ghana	641,696,684	-	-	117,569	117,569	0.02%
Kenya	1,017,245,895	-	-	46,458	46,458	0.00%
Nigeria	101,481,902	-	-	-	-	0.00%
South Africa	1,619,865,077	177,710	-	-	177,710	0.01%
Tanzania	3,851,527	-	-	-	-	0.00%
Zambia	63,504	-	-	-	-	0.00%
Other	**1,465,820,660**	**721,994**	**70,223**	**-**	**651,771**	**0.04%**
Various - Insurance	1,465,820,660	721,994	70,223	-	651,771	0.04%
Grand Total	**117,963,477,744**	**597,092,503**	**29,365,011**	**867,231**	**568,594,723**	**0.482%**

DEFINITIONS

Active Portfolio – Maturity date is after the date of this report (transaction currently active)

Administrative Expenses – Expenses of the day-to-day operation of the Bank. Majority of expenses are compensation and benefits. Does not include program costs

Allowances – Accumulated provisions against which future loan write-offs would be made

Defaults – Payment from EXIM to guaranteed or insured party plus unpaid past due loan installments

Default Rate – Defaults less recoveries plus expenses over total amount financed on active portfolio

Disbursements – Goods and services delivered to foreign buyers and supported by EXIM under the loan, guarantee and insurance programs

Loan Arrears - Direct loan repayment currently overdue. For defaulted credits, this includes the entire amount outstanding. For rescheduled sovereign credits, this includes the underlying credits which are still active based upon the original payment terms

Nominal Discount Rates - A forecast of nominal or market interest rates for the current year based on the economic assumptions for the following Fiscal Year Budget as presented by the Office of Management and Budget in Circular A-94 Appendix C

Recoveries – Money recovered on guarantees and insurance that have defaulted and a claim has been paid out. For direct loans in arrears, this includes funds recovered after missed payments

Program Costs - Cost related to loan, guarantee, and insurance transactions where the fees are insufficient to cover prudent reserves

MANDATES

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…."

Small Business Mandate (12 U.S.C. 635(b)(1)(E)(v)) - "the Bank shall make available, from the aggregate loan, guarantee, and insurance authority available to it, an amount to finance exports directly by small business concerns (as defined under section 632 of title 15) which shall be not less than 25 percent of such authority for each fiscal year."

Sub-Saharan Africa Mandate (12 U.S.C. 635(b)(9)(A)) - "The Board of Directors of the Bank shall …take prompt measures, consistent with the credit standards otherwise required by law, to promote the expansion of the Bank's financial commitments in sub-Saharan Africa…."