°CICERO
Shades of Green

Volvofinans Bank AB
Green Bond Second Opinion

6 September 2022

Executive Summary

Volvofinans Bank AB was founded in 1959, and offers loans and leasing services in Sweden to private individuals and companies. The bank's primary business is to offer loans and leasing to private individuals and companies through Volvo, Polestar, and Renault car dealers. In 2021, the company had a lending portfolio of SEK 39bn. Volvofinans Bank has issued 8 green bonds, amounting to SEK 4.05bn, with SEK 3.35bn outstanding.

Under its updated 2022 green bond framework, the issuer seeks to finance or refinance electric and hybrid vehicles. Such vehicles include passenger cars as well as buses and trucks for public and heavy-duty transportation. Electrification and decarbonisation of transportation are vital for achieving a climate resilient and low carbon future, and therefore, electric vehicles and other zero emission solutions qualify for Dark Green. In regions where the electricity grid is mainly based on low carbon and renewable sources, such as in the Nordic countries, electric cars represent clear environmental benefits compared to fossil fuel cars. Moreover, electrification of buses and heavy-duty vehicles represents a significant step toward decarbonising heavy-emitting transport systems.

The framework still enables the issuer to refinance loans and lease contracts for existing plug-in hybrid vehicles (PHEV), which currently comprise 62% of the issuer's green asset portfolio. Plug-in hybrid vehicles can run on gasoline and will not be a part of an emissions-free transport system. However, they may play a role in reducing emissions while the charging infrastructure is developing. Hence such hybrid vehicles are considered Light Green**.** The issuer informs that hybrid vehicles eligible for refinancing must meet the current taxonomy criteria for emissions. Further, the issuer informs that the average lease and loan contract length is 23 months for PHEVs. On that premise, the issuer informs that by the end of 2024, it aims to have replaced all current PHEVs with electric vehicles in its green asset portfolio.

We rate the framework **CICERO Medium Green** and give it a governance score of **Good**. At the corporate level, the issuer has set targets for scope 3, but is yet to report and set targets for its scope 1-2 emissions. The issuer aims to report climate risks following the recommendations by the TCFD by year-end. The issuer could strengthen its governance score by developing a sustainability strategy to anchor all its sustainability efforts and targets. At the framework level, the issuer reports the impacts of its green bond investments on a portfolio basis, including its methodology. The issuer has good procedures for monitoring and reporting on its green bond projects and provides an annual letter to its investors.

SHADES OF GREEN

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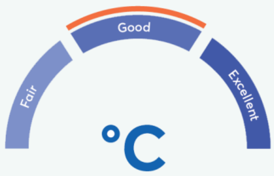
Medium Green

GOVERNANCE ASSESSMENT



GREEN BOND PRINCIPLES

Based on this review, this framework is found in alignment with the principles.

Key Strengths

In this updated framework, the issuer has strengthened its use of proceeds criteria, seeking only to provide loans and lease contracts to zero emission vehicles starting April 2022. CICERO Green is encouraged to see the strengthening of the framework's criteria and views the overall development of the framework since 2017 as positive. By taking the step to exclusively finance electric vehicles going forward, and only refinance PHEVs in the current portfolio that meet the taxonomy criteria, the issuer is surpassing the national requirements determined by the 'bonus malus' regulations[1]. By Q1 2023, the issuer expects electric cars to make up more than half of the share of its green asset portfolio and ~70% by June 2023. By 2024, the issuer expects the PHEV share to be close to zero per cent of the portfolio.

The issuer may also finance electric buses and trucks, a significant step toward decarbonising heavy-emitting transport systems. According to Volvo Group, approximately 95% of the life cycle emissions from trucks and similar machines with traditional diesel engines occur in the use phase (Scope 3). Similar results can also be observed when comparing the latest electric truck from Volvo against its diesel-powered equivalent[2]. Heavy duty transportation is viewed as a hard to abate sector, and the transition to electrification is therefore vital to achieving a low carbon and climate resilient future.

Key Pitfalls

The framework may refinance certain PHEVs, which are part of the issuer's current green asset portfolio. This includes PHEVs that are aligned with the taxonomy criteria of a maximum of 50g CO_2/km (WLTP[3]). Still, investors should be aware that maximum emission thresholds do not necessarily safeguard against high fossil-fuel consumption, as some of the plug-in hybrids that are part of the green asset portfolio have a limited battery range.

Impact reporting and details on methodology is a vital tool to enhance transparency concerning the assets' economic risk from climate change and the environmental effectiveness of the assets The issuer has procedures for monitoring and reporting green bond assets and will continue to publish an annual investor letter publicly available on its websites. However, it should be noted that emission reductions for hybrid vehicles are uncertain, as stated by the issuer in its latest green bond investor report[4]. Several variables, such as type of fuel used, city vs highway driving, and other factors, can affect actual emissions. Moreover, the issuer assumes that electric vehicles are entirely emission-free and does not consider emissions generated from power production at the grid level, which is a critical emission factor for electric vehicles. Overall, this could result in incomplete impact reporting figures for emission reduction.

[1] The Swedish Transport Agency – The bonus malus system

[2] Volvo trucks - Environmental footprint calculator: Volvo electric vs diesel truck

[3] The Worldwide Harmonised Light Vehicles Test Procedure (WLTP) is a global harmonised standard for determining the levels of pollutants, CO_2 emissions and fuel consumption of traditional and hybrid cars, as well as the range of fully electric vehicles.

[4] Volvofinans bank – Investor Report Green Bonds 2021

Contents

1 Volvofinans Bank's environmental management and green bond framework

Volvofinans Bank description

Volvofinans Bank AB (**"VFB"** or the **"company/issuer"**) was founded in 1959 is owned by Swedish Volvo and Renault dealers via Volverkinvest AB and Volvo Personvagnar AB holding companies. The bank's primary business is to offer loans and leasing to private individuals and companies through Volvo, Polestar, and Renault car dealers[5]. The head office, where the majority of the more than 250 employees work, is located in Gothenburg. VFB is not currently carrying out any business outside Sweden. In 2021, the company had a lending portfolio of SEK 39bn.

VFB issues green bonds under its Medium Term Note (MTN) program, where green bond funding is used to refinance the company's portfolio of green loans. On May 9, 2017, VFB issued a green bond of SEK 700m. The first green bond was issued under the initial green bond framework dated March 17, 2017, which was rated Light Green by CICERO. Since, VFB has issued a total of SEK 3.35bn of green bonds[6] under its updated green bond framework dated April 10 2019[7], which was rated Medium Green by CICERO.

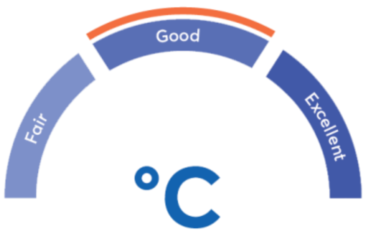
As of writing, VFB has SEK 3.35bn of green bonds outstanding.

Governance assessment

VFB has sound management and governance structures and regular and transparent reporting to investors and the public about its green bond project outcomes. VFB also has environmental intent and a sustainability policy for supporting electric and hybrid vehicles. The company has determined targets for its scope 3 emissions, which it seeks to reduce by 40% within 2025. The issuer informs that it is currently assessing its scope 1-2 carbon inventory and intends to report on these scopes in the future.

Furthermore, the company is aware of climate change-related risks and is planning to report such risks according to the key recommendations by the Task Force on Climate-related Financial Disclosures (TCFD).

The overall assessment of Volvofinans Bank's governance structure and processes gives it a rating of **Good.** The issuer could strengthen its governance score by developing and publishing a sustainability strategy to anchor all its sustainability efforts and targets and report on scope 1-2 emissions going forward.



[5] Volvo car dealers also offer other brands than Volvo
[6] Volvofinans Bank AB – Bond issuance (Medium term note programme)
[7] Volvofinans Bank AB – Green bond framework dated 10.04.2019

Sector risk exposure

Physical climate risks. Science shows that extreme weather events are becoming more frequent and intense, that incremental climatic changes are highly likely to happen, and that their impacts are expected to grow more severe over the coming years and decades. The impacts of physical risks are uncertain, in probability, magnitude and timing. The issuer has identified several physical climate risks that its counterparties are exposed to. Such risks include damage to its properties and infrastructure, as well as lowered productivity in its supply chain due to extreme weather events.

Transition risks. Due to the profound changes needed to limit global warming to 2ºC, transition risk affects all sectors. The number, scope, and ambition of regulatory requirements regarding greenhouse gas emissions are expected to increase significantly in the future for the automotive sector, especially concerning vehicle fuel efficiency regulations and emissions standards. The issuer's lending portfolio is currently mainly allocated to plug-in hybrid vehicles (PHEV 62%) and therefore exposed to such regulatory risks and risks related to tightening emission standards. Consequently, residual values of vehicles will likely change, where such changes need to be accurately reflected and estimated in the issuers credit and lease models.

Environmental risks. Financial institutions are vital for achieving the Paris Agreement target but need to further improve climate and environmental risk management and align their strategies to support climate transition. Environmental risk exposure for such institutions depends on the nature of their loans and business activities. Loan collateral, which in this case is hybrid and electric vehicles, may be exposed to various environmental risks. Such risks need to be accurately assessed and reflected in the issuer’s credit models.

Environmental strategies and policies

VFB established a sustainability policy for its operations in 2015. It has since updated the policy to include initiatives seeking to integrate environmental concerns into its core business process, such as integrating environmental considerations into its lending and credit risk assessment practices. According to the company, it strives to limit its environmental footprint as much as possible, as long as it is technically feasible and economically reasonable, where the core focus is on supporting the transition to fossil fuel transportation. As part of this focus, VFB has established a carbon emissions reduction goal, which aims to reduce scope 3 emissions by 40%[8] by 2025 for its lending portfolio. Reporting for scope 1-2 emissions is currently not available. However, the issuer informs that it intends to report on these scopes in the future.

As of April 1 2022, the issuer disclosed that 62% of the green loan portfolio consisted of electric/diesel hybrid cars, where the remaining 38% are electric. The issuer informs that it expects the share of electric cars by the end of 2022 to be 57%, and over 69% by June 2023. According to the company's latest sustainability report for 2021, more than 68% of the vehicles financed in 2021 under the business segment fleet were chargeable. Further, the issuer informs that it expects the share of PHEV in its portfolio to drastically decrease close to zero per cent by the end of 2024.

At the corporate level, the company aims to reduce its electricity and paper consumption by deploying digital solutions and has reduced paper use by 4% year-over-year. VFB is headquartered in Gothenburg, located in an environmentally certified building, and in 2021, the company only used renewable energy for its consumption

[8] The goal is based on average emissions of grammes CO_2 per km

labelled 'Good Environmental Choice'[9]. VFB informs that 77% of the 64 cars in its company fleet for business travel are rechargeable.

VFB is aware of climate risks associated with the changing regulations in the market for fossil fuel-powered vehicles and states that it sees a long-term risk for credit rating downgrades if lending is insufficiently sustainable, as well as potential declines in lending volumes[10]. In its latest sustainability report, the company stated its ambition to report identified climate risks according to the recommendations by the TCFD. The issuer informs that its initial TCFD reporting on climate risk will be published by Q3 2022.

Green bond framework

Based on this review, the updated framework is found to be in alignment with the Green Bond Principles. For details on the issuer's framework, please refer to the green bond framework dated June 2022.

Use of proceeds

For a description of the framework's use of proceeds criteria, and an assessment of the categories' environmental benefits, please refer to section 2.

Selection

Eligible assets[11] are selected and approved in consensus by the Head of Treasury and the Sustainability Manager, where both representatives have veto power. The Treasury department is responsible for monitoring the allocation of loans and leases to the bank's Green Asset Portfolio and the development of its total assets.

The assessment of eligible assets will be done based on the updated vehicle type eligibility criteria. Only loans and leases to battery electric vehicles (BEV) are eligible and will be added to VFB's green asset portfolio starting the 1st of April 2022. The issuer informs that it will strive to continuously exercise professional judgement, discretion and sustainability expertise when identifying eligible assets.

Management of proceeds

Net proceeds from VFB's green bonds will be credited to a designated account to be tracked appropriately. The treasury department regularly monitors the allocation of loans and leases to the green portfolio and the development of the total assets.

The issuer states that it will strive to exceed the balance of the green asset portfolio against the balance of net proceeds from its outstanding green bonds. According to the investor report on green bonds issuance for 2021[12], the approved green loan portfolio's financial volume was 230% of the outstanding green bonds' volume[13], up 10% from CICERO Green's last report in 2019.

Any unallocated proceeds temporarily held by VBF, will be placed on the company's liquidity reserve, mainly consisting of covered bonds (household mortgages) and municipal bonds. The issuer's green bond framework specifies that new bonds will only be issued if the present total credit volume in the green loan portfolio exceeds the outstanding total volume of green bonds.

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[9] Bra miljöval – About Good Environmental Choice

[10] Volvofinans Bank – 2021 Sustainability Report

[11] "Eligible Assets" means a selected pool of loans and leases to vehicles that are funded, in whole or in part, by VFB and that promote the transition to low carbon and climate resilient growth, as determined by VFB.

[12] Volvofinans Bank – Investor Report Green Bonds 2021

[13] Including most recent issuance of green bond, ID 398, issued 25.10.2021

Reporting

VBF recognises the importance of transparency and impact reporting, and following the green bond principles, the framework includes provisions on transparency (including reporting) and accountability.

VFB will provide an annual investor letter including:

- Total amount of green bonds issued and outstanding
- Description of the green asset portfolio, including:
  - total value of approved and outstanding eligible assets and a breakdown of the portfolio by vehicle types and criteria for approval
  - impact reporting at portfolio level
  - information about the maturity profile of the green asset portfolio
  - information about the average share of the total value of the vehicles in the green assets portfolio that has been financed by VFB
  - information about the share of green bond financing of the green asset portfolio
  - amount of unallocated proceeds (if any)

In addition, the report will include a selection of eligible asset examples, such as the most common car models in the portfolio. Going forward, VFB will also disclose potential information on its Taxonomy alignment of the included eligible assets in its portfolio. VFB informs that its currently assessing economic activities 6.3, 6.5, and 6.6 as determined by the EU taxonomy delegated acts[14] to be relevant for its operations.

The investor letter, as well as the use of proceeds, tracking and management of funds, will be assured by VFB's designated compliance functions, and the carbon footprint will be reported at a portfolio level compared to relevant reference levels.

Emission reductions will be calculated using a method where the average of the car fleet in the green loan portfolio as well as financed by green bonds is compared to the average emissions from new cars in Sweden. It should be noted that emission reductions for hybrid vehicles are uncertain were several variables, such as type of fuel used, city vs highway driving, and other factors that can affect actual emissions. For electric vehicles, the issuer assumes that such vehicles are entirely emission-free and does not consider emissions generated from power production at the grid level, which is a critical emission factor for electric vehicles. Overall, this could result in incomplete impact reporting figures for emission reductions.

The investor letter and opinion of the compliance function will be made publicly available on the website of VFB[15].

[14] EU Commission - Taxonomy regulations delegated acts. 2021
[15] Volvofinans Bank – Investor Relations: Green Bonds

2 Assessment of Volvofinans Bank's green bond framework

The eligible projects under VFB's green bond framework are shaded based on their environmental benefits and risks, based on the "Shades of Green" methodology.

Shading of eligible projects under the Volvofinans Bank's green bond framework

- Proceeds from VFB's green bonds will be used to finance or re-finance, in part or in full, eligible projects.
- Starting from 1st of April 2022 only BEVs will be added as eligible assets.
- Already approved low-emission passenger vehicles, which are taxonomy aligned with a maximum of 50g CO2/km (WLTP), will remain in the green asset portfolio. Such vehicles include hybrids; hence, hybrid vehicles that meet the taxonomy WLTP criteria are eligible to be refinanced under this updated framework.
- VFB has since 2017 issued 8 green bonds, amounting to SEK 4.05bn. Currently VFB has 7 bonds of green bonds outstanding, amounting to SEK 3.35bn.

Category	Eligible project types	Green Shading and considerations
Clean Transportation	✓ Light commercial and passenger vehicles with zero specific CO_2 emissions* ✓ Fully electric freight transport vehicles with zero specific CO_2 emissions* ** Only loans and leases to electrified vehicles (BEV) will be added to the Green Asset Portfolio starting April 1st, 2022. Already approved low-emission passenger vehicles (PHEV), which are EU Taxonomy aligned with*	**Medium Green** ✓ Electrification and decarbonisation of transportation is vital for achieving a climate resilient and low carbon future. Hence, electric vehicles and other zero emission solutions qualify for dark green. ✓ The importance of electricity grid emissions should be considered when evaluating the environmental benefits of electric vehicles. In regions where the electricity grid is mainly based on low carbon and renewable sources, such as in the Nordic countries, electric cars represent clear environmental benefits compared to fossil fuel cars. However, the electricity mix by country varies considerably (e.g., 11g CO_2/kwh in Norway[16], 791g CO_2/kwh in Poland[17], and 378 CO_2/kwh in Germany[18]). ✓ Electrification of buses and heavy-duty vehicles represents a significant step toward decarbonising heavy-emitting transport systems. CICERO Green views such efforts as necessary.

[16] NVE
[17] Carbon Footprint - Country Specific Electricity Grid GHG emissions Factors
[18] EU Transport & Environment - How clean are electric cars?

a maximum of 50g CO_2/km (WLTP), will, however remain in the green asset portfolio. Over time the green asset portfolio will be zero emitting assets only.	✓ Hybrid vehicles aligned with the current taxonomy criteria for PHEVs, and part of the green asset portfolio, are still eligible for refinancing under the updated framework. The issuer informs that it aims to phase such vehicles out of the portfolio by the end of 2024. For such hybrid vehicles, investors should be aware that a maximum emission threshold of 50g CO2/km, does not necessarily safeguard against high fossil-fuel consumption. This is mainly due to the limited battery range of such PHEVs. ✓ Plug-in hybrid vehicles can run on gasoline and will not be a part of an emissions-free transport system. However, they may play a role in reducing emissions while the charging infrastructure is developing. Hence such hybrid vehicles are considered Light Green.

Table 1. Eligible project categories

3 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated June 2022. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

'Shades of Green' methodology

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

	Shading	Examples
°C	**Dark Green** is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.	Solar power plants
°C	**Medium Green** is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.	Energy efficient buildings
°C	**Light Green** is allocated to transition activities that do not lock in emissions. These projects reduce emissions or have other environmental benefits in the near term rather than representing low carbon and climate resilient long-term solutions.	Hybrid road vehicles

The "Shades of Green" methodology considers the strengths, weaknesses and pitfalls of the project categories and their criteria. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised, including potential macro-level impacts of investment projects.

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Assessment of alignment with Green Bond Principles

CICERO Green assesses alignment with the International Capital Markets' Association's (ICMA) Green Bond Principles. We review whether the framework is in line with the four core components of the GBP (use of proceeds, selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed. The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the selection process. CICERO Green assesses whether net proceeds or an equivalent amount are tracked by the issuer in an appropriate manner and provides transparency on the intended types of temporary placement for unallocated proceeds. Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs.

Appendix 1:
Referenced Documents List

Document Number	Document Name	Description
1	Volvofinans Bank Green Bond Framework, dated June 2022	Green bond framework, dated June 2022
2	Volvofinans Bank sustainability report, 2021	Sustainability reporting for 2021
3	Volvofinans Bank, Investor report green bonds, 2021, 2020	Annual green bond investor letters, dated 2021 & 2020
4	Volvofinans Bank sustainability policy, dated 2021	Sustainability policy describing the issuer's key sustainability efforts and ambitions, dated 5th of October 2021
5	Volvofinans Bank portfolio figures by contract and vehicle type, dated 2022	Portfolio figures by contract (lease and loan) and vehicle type, dated 31st of March 2022.

Appendix 3:
About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognised as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University, the International Institute for Sustainable Development (IISD) and the School for Environment and Sustainability (SEAS) at the University of Michigan.

- **2021 Largest External Reviewer,** Climate Bonds Initiative Awards
- **2020 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2020 Largest External Review Provider In Number Of Deals,** Climate Bonds Initiative Awards
- **2019 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2019 Largest Green Bond SPO Provider,** Climate Bonds Initiative Awards
- **2018 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2018 Largest External Reviewer,** Climate Bonds Initiative Awards
- **2017 Best External Assessment Provider,** Environmental Finance Green Bond Awards
- **2016 Most Second Opinions,** Climate Bonds Initiative Awards