Impact assessment of lending to the automotive industry

Insights into the transition from combustion engine vehicles to electric vehicles

March 2020

External report

IMPACT™ INSTITUTE

DBS

About this report

This pilot impact measurement report is one of the first steps DBS is taking towards more comprehensively understanding and measuring its impacts. It is the result of a collaboration between DBS and Impact Institute to provide insight into the impacts of a bank's lending activities in the automotive sector.

Where applicable, impact measurement definitions, principles and criteria presented in this report follow the Integrated Profit & Loss Assessment Methodology.

Outline of this report

About DBS

DBS is a leading financial services group in Asia with a presence in 18 markets. Headquartered and listed in Singapore, DBS has a growing presence in the three key Asian axes of growth: Greater China, Southeast Asia and South Asia. The bank's "AA-" and "Aa1" credit ratings are among the highest in the world.

https://www.dbs.com/default.page

About Impact Institute

Impact Institute is a social enterprise with a mission to contribute to an economy that creates value for all. We do that by helping organisations to quantify, value and improve their impact on society. Impact Institute assists multinationals, SMEs, NGOs and governmental organizations in risk management and strategic decisions, by providing insight into their impacts and related risks and opportunities.

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1 *Introduction*

DBS has started measuring its impact to better steer portfolios towards sustainability

DBS is committed to creating long term value for its stakeholders

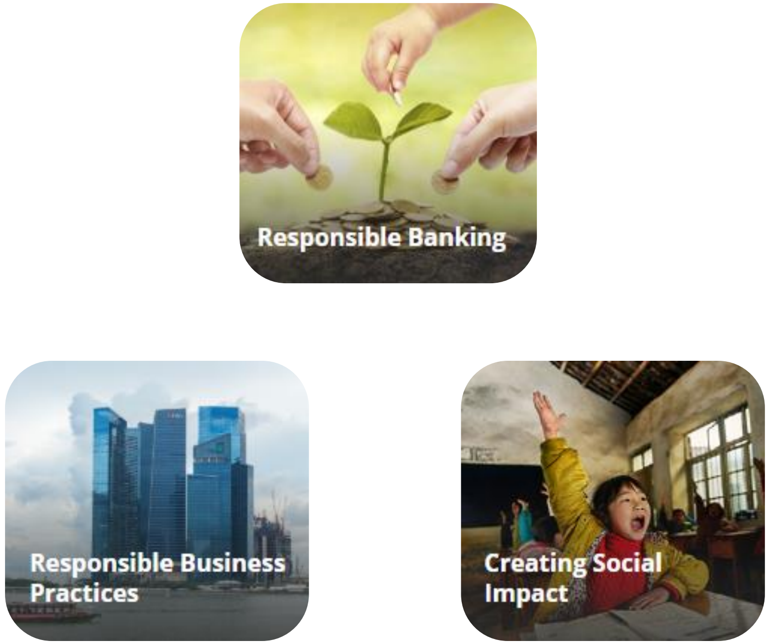
As a purpose-driven bank, DBS is committed to creating long term value by managing its business in a balanced and responsible way. It recognises its obligations to multiple stakeholders and strives to consistently deliver value to all of them, now and in the future. This is reflected in the three pillars of DBS' sustainability approach: responsible banking, responsible business practices, and creating social impact (see Figure 1).

Creating more value requires DBS to better understand the impact of its clients' activities

The impact of DBS' lending depends on the activities of its clients. Understanding the types and magnitudes of the impacts that DBS creates is an important step towards better-informed lending decisions. This can help to steer the bank's corporate lending portfolio to create more long-term value for the economy, society and the environment. Impact measurement is a developing field that can provide this information both in absolute and relative measures.

DBS has started measuring impact through two pilot studies focusing on the palm oil and automotive sectors. These pilot studies use the Integrated Profit & Loss methodology developed by Impact Institute and aim to deepen DBS' understanding of its impacts, specifically in its institutional banking business. Ideally impact measurement is based entirely on specific client data. Our current pilot studies are an initial step towards such a goal. *The report on the impact of lending to the palm oil sector can be found here.*

Figure 1: The DBS approach to sustainability



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DBS aims to deepen the understanding of a transition from combustion engine vehicles to electric vehicles

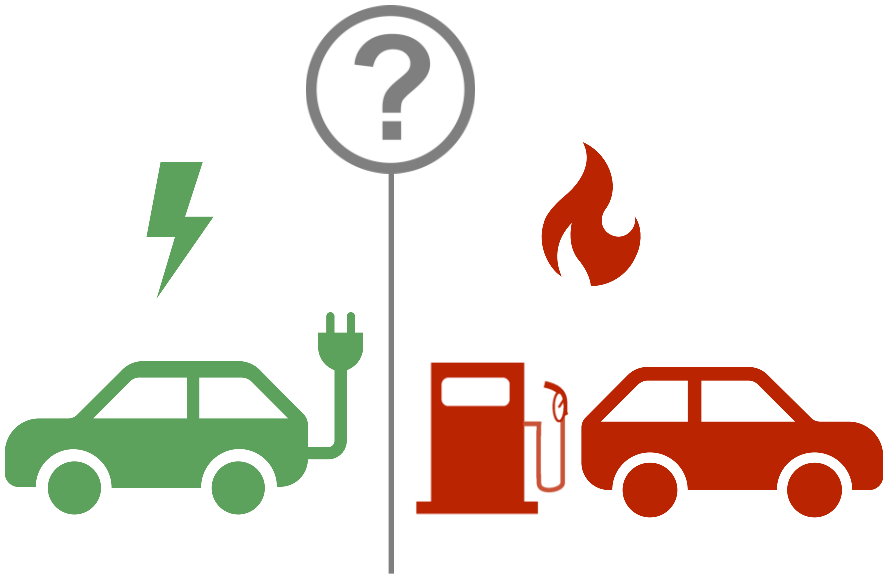
Transitioning from combustion engine vehicles to electric vehicles has trade-offs

As electric vehicles (EVs) are powered by electricity, they are often assumed to be more sustainable than combustion engine vehicles (CEVs).[1] EVs can improve the environmental impact of driving, as they do not use fuel, nor produce tailpipe fumes and emissions. Such improvement in environmental impact is the reason for the transition in the automotive industry, as well as the rapid growth of the EV sector in China.[2] On the other hand, the production of EVs – and especially of the battery – is also associated with negative social and environmental impacts from, for example, raw materials mining.

DBS wants to better understand the impacts of this transition

As a lender to the automotive sector, DBS is working with clients to enable the transition to EVs and wants to understand the environmental and social impacts of such a transition. DBS has already performed research on the transition risks and opportunities of EVs (see EV: China leads the way).

This impact measurement pilot on the automotive sector allows DBS to further increase its understanding of the economic (e.g. profits and taxes), social (e.g. employment) and environmental (e.g. scarce materials and climate change) impacts. By focussing on the differences between electric and combustion engine vehicles, this study provides insight into current and upcoming challenges as the transition unfolds.



[1] US Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE). (2019). Reducing pollution with electric vehicles.
[2] IEA. (2019a). Global EV Outlook 2009 – scaling-up the transition to electric mobility. International Energy Agency.

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Impacts are assessed using the Integrated Profit & Loss (IP&L) methodology

Impact is the measurable economic, social and environmental effect of an activity

Impact is about *effects* – not intentions. Impact goes beyond inputs and outputs and focuses on the difference an organisation makes for society and the environment. An impact can be positive or negative. An impact can be, for example, a contribution to the well-being of people (for example, through job creation or medicine production), a contribution to the stock of assets in society (where assets can be, for example factories, data or forests) or a breach of a right (such as child labour).

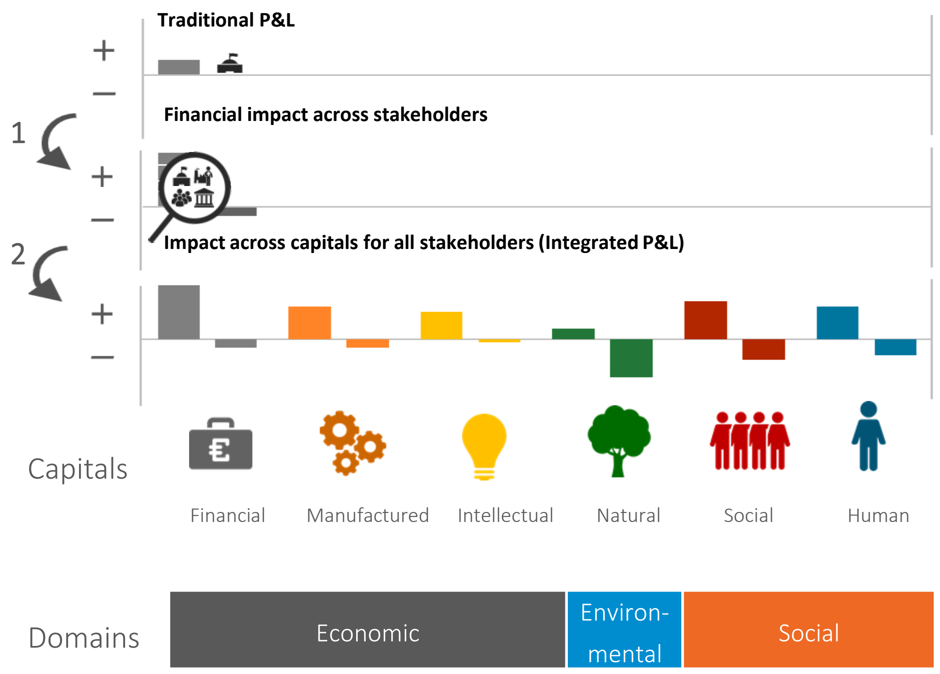
The Integrated Profit & Loss (IP&L) methodology is used to assess impacts

The IP&L methodology provides a novel and rigorous approach to measure and value impact, by extending the traditional profit and loss (P&L) account in two steps (see Figure 2):

1. It takes into account the value created for all stakeholders of an organisation – such as their clients and society – in addition to the value created for investors.
2. It includes both non-financial and financial value creation. In particular, the IP&L methodology includes value in the form of six capitals, following a rigorous categorisation based on The International <IR> Framework. The six capitals can be mapped to three intuitive impact domains: economic, social, and environmental.

As a result, the IP&L methodology provides a complete overview of an organisation's impact on all its stakeholders through all the capitals. The foundation and principles used in the IP&L methodology for impact measurement and valuation are built upon, among other documentation, the Integrated Profit & Loss Assessment Methodology and Framework for Impact Statements.

Figure 2: Two-step extension of the traditional P&L to IP&L



This study focuses on the key differentiating components and materials used in CEV and EV

Focus on differences in engine and batteries for CEV vs EV

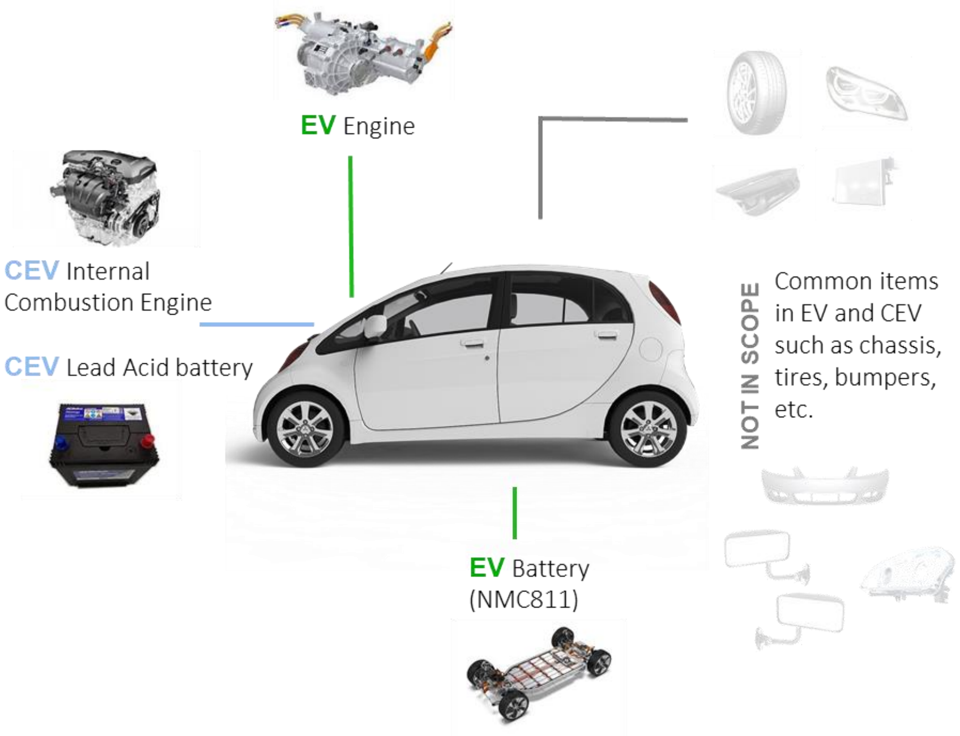
This pilot study aims to assess the impacts of lending to the automotive sector by considering two different type of vehicles: CEVs and EVs. The assessment focuses on their differentiating components - the battery and engine. Components common to both vehicles, such as chassis, tires and trace materials, are out of scope in the assessment (see Figure 3).

The study makes its assessment of the impacts based on industry averages and does not utilise actual data from DBS' clients.

Similar vehicle specifications allow for comparable results

Similar specifications (e.g. average lifespan and efficiency) are selected to provide comparable results. Here, the efficiency of EVs is based on the size and type of battery (Li-ion (NMC), 12.3 kWh/100km)[3] and the efficiency of CEVs is based on an average gasoline consumption of 6.8L/100km.[3] This is comparable to the efficiency of commercial EVs and CEVs. In both cases, an average lifespan of 150,000 km over ten years is used.[3]

Figure 3: Illustration of components in scope



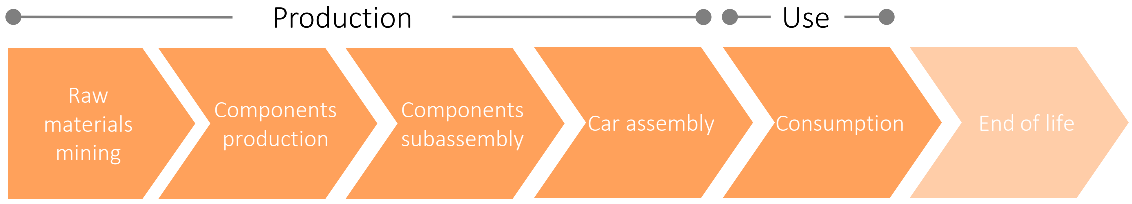
[3]IEA. (2019a). Global EV Outlook 2019 – scaling-up the transition to electric mobility. International Energy Agency.

The assessment considers impacts arising from production to use of CEVs and EVs

Value chain scope includes steps and geographies based on their materiality

The assessment covers the value chain of the vehicles from production to use but excludes the decommissioning of vehicles (see Figure 4). This involves considering many materials, steps and countries. In the production stage, the assessment focuses on the most important materials in producing the battery and engine. The sourcing countries are selected based on their global share (e.g. Australia is selected as the source country of lithium because it covers 49% of global lithium production). The impacts arising at end of life of the vehicle are relatively small,[4] and therefore are not included. A detailed overview of the value chain is included in the Appendix.

Figure 4: Value chain scope



[4]IEA. (2019a). Global EV Outlook 2019 – scaling-up the transition to electric mobility. International Energy Agency.; Hawkins, T. R., Singh, B., Majeau-Bettez, G., & Strømman, A. H. (2013). Comparative environmental life cycle assessment of conventional and electric vehicles. Journal of Industrial Ecology, 17(1), 53-64.; Kukreja, B. (2018). Life cycle analysis of electric vehicles – quantifying the impact. City of Vancouver & The University of British Columbia.

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The assessment considers economic, social and environmental impacts

Impacts scope includes a range of positive and negative impacts

The basis of the assessment is an estimate of the socio-economic benefits and social and environmental costs of CEVs and EVs. Based on this, the impact of lending to either sector can be compared.

The impacts under review were chosen according to the Impact Institute Standard Impact List 2019 (see Appendix for definitions) and were determined based on a materiality and feasibility assessment. Based on this, intellectual capital impacts are beyond the scope of this assessment. Similarly, impacts outside the main value chain, impact multipliers of financial impacts (e.g. the impact of the use of tax payments by governments) and higher order effects (e.g. effects of economic activity on institutions) are also excluded from the study.

For visualisation purposes, the impacts of each capital are classified according to the ESE (economic, social, and environmental) domains (see Table 1 and 2). The economic domain contains (net) positive impacts, the environmental domain contains negative impacts, and the social domain contains both positive and negative impacts. Results are expressed as impacts incurred for every Singapore dollar (SGD) lent to the palm oil sector. These impacts are converted to a monetised form in equivalent Singapore dollars (SGD-eq) so as to allow the comparison of financial and non-financial impacts (see Appendix for further explanation). The results are shown as SGD-eq/SGD lent. The year of measurement is 2018.

Table 1: Impacts in scope (benefits)

Domain	Impact Category
Economic	Salaries, taxes and profits
	Other financial impacts
	Contribution to consumer goods
	Other manufactured impacts
Social	Well-being effects of employment
	Creation of human capital
	Value of employee time

Table 2: Impacts in scope (costs)

Domain	Impact Category
Social	Occupational health and safety breaches
	Gender skill gap
	Underpayment
	Child labour
	Forced labour
	Overtime
	Workplace harassment
	Lack of freedom of association
Environ-mental	Contribution to climate change
	Air pollution
	Water pollution
	Scarce water depletion
	Fossil fuel depletion
	Scarce materials depletion
	Land use

Detailed information on the impacts covered by the assessment is included in the Appendix.

2 *Impacts of lending to the automotive sector*

Key result: the transition from CEV to EV reduces the environmental and social costs of the automotive industry

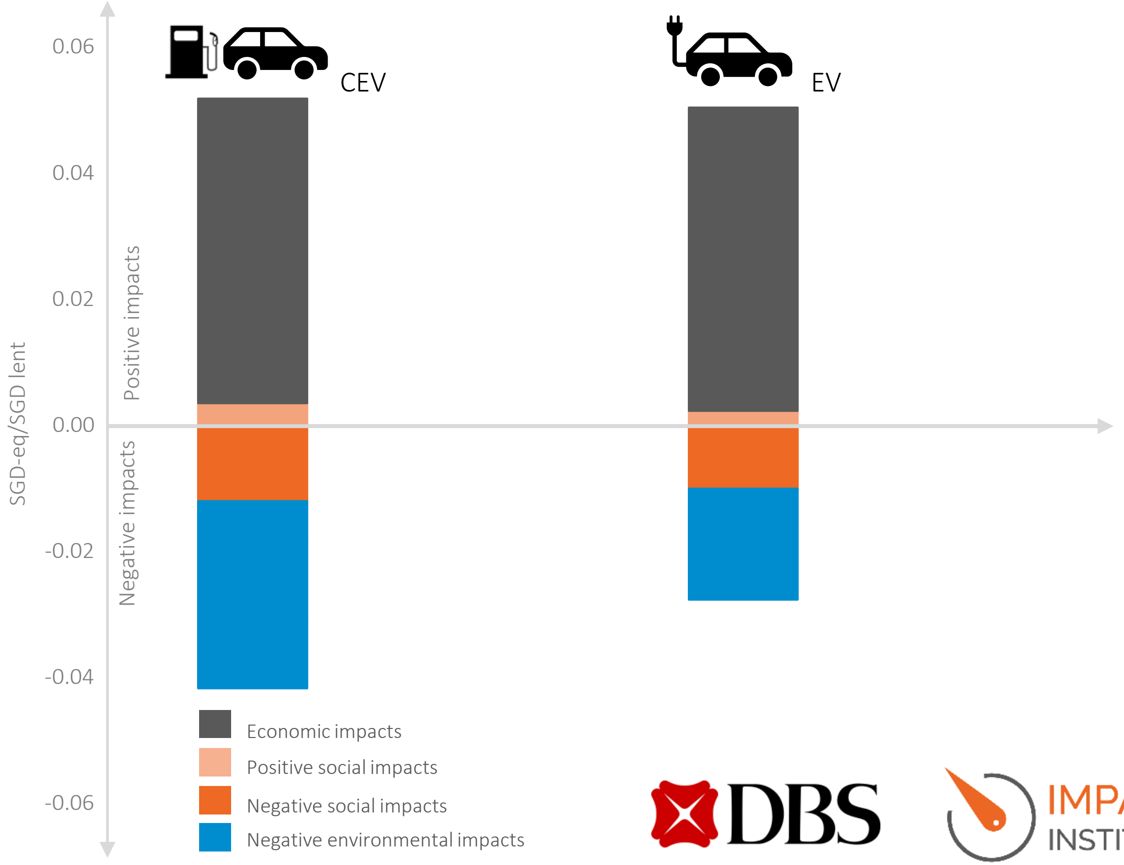
Both the CEV and EV sectors create economic benefits, but transitioning to the EV sector reduces environmental and social costs.

Lending to the automotive industry, be it to the CEV or EV sector, creates economic benefits to society. This impact is mainly driven by salaries, taxes and profits, as well as consumer value of driving a vehicle.[5] Both sectors also produce positive social impact, such as the well-being effects provided by employment across the value chain.

However, both sectors also have environmental and social costs (see Figure 5). Transitioning from CEV to EV reduces these costs. Lending to the EV instead of CEV sector has lower environmental and social costs of approximately 40% and 16% respectively.

<u>Figure 5: Impacts of lending to the automotive industry *(SGD-eq/SGD lent)* categorised per ESE domain</u>

Impacts are monetised to make financial and non-financial impacts comparable.



[5]Differences in the consumer value of CEVs vs EVs, such as costs for fuel or energy and accessibility of petrol or charging stations, are not included.

Moving from CEVs to EVs results in significant reductions in environmental and social costs

The top three environmental costs due to lending to the EV and CEV sectors are air pollution, contribution to climate change, and fossil fuel depletion

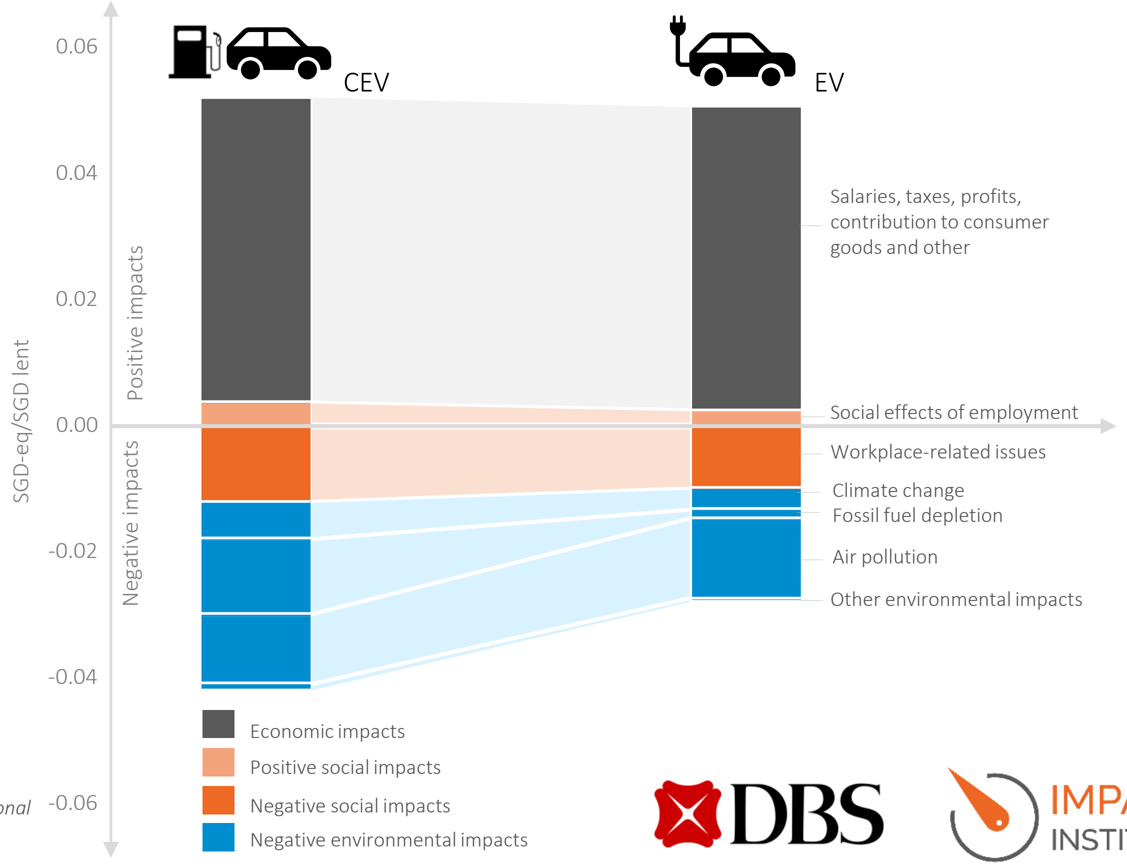
For CEVs, fossil fuel depletion is the highest environmental impact (41%) followed by air pollution (35%) and contribution to climate change (21%). In the EV sector, where environmental costs are substantially lower, air pollution is the highest impact (69%).

The CEV sector's heavy reliance on fossil fuels (coal, oil, natural gas) required for driving the vehicles explains the biggest differences between CEVs and EVs. A transition from CEVs to EVs can reduce the contribution to climate change by 45%, as there are less greenhouse gas emissions associated with driving.[6] All environmental impacts are lower for EVs, except air pollution, which is on average, slightly higher for EVs than for CEVs (see Figure 6).[7] The key driver for this is battery production and (grey) electricity generation needed to drive an EV over its lifespan.

The social costs of lending to the EV and CEV sectors are mainly workplace-related

There are indications of social costs in both sectors. Workplace harassment, overtime and underpayment are the biggest social impacts in both. There are slightly lower social costs for the EV sector. The assembly of an EV requires more highly skilled labour and fewer hours than the assembly of a CEV.[8] As a result, there appear to be fewer labour rights issues in EV production, although reliable data in the relevant steps and countries is scarce.

Figure 6: Breakdown of material impacts of lending to the automotive industry *(SGD-eq/SGD lent)*



[6]Otten, M.B.J., & Afman, M.R. (2015). *Emissiekentallen elektriciteit. CE Delft.*
[7]Hawkins, T. R., Singh, B., Majeau-Bettez, G., & Strømman, A. H. (2013). *Comparative environmental life cycle assessment of conventional and electric vehicles. Journal of Industrial Ecology, 17(1), 53-64.*
[8]European Commission. (2014). *Analytical highlight – focus on automotive sector and clean vehicles. EU Skills Panorama*

Current EV production still has substantial negative environmental impact

There are multiple steps in the value chain process, that can be split between production and use phase. The production phase includes steps from mining to car assembly, while the use phase includes driving the car and fuel production (for CEVs) or electricity generation (for EVs). Maintenance is excluded in this assessment

Environmental costs primarily occur in the use phase for CEVs, as opposed to EVs

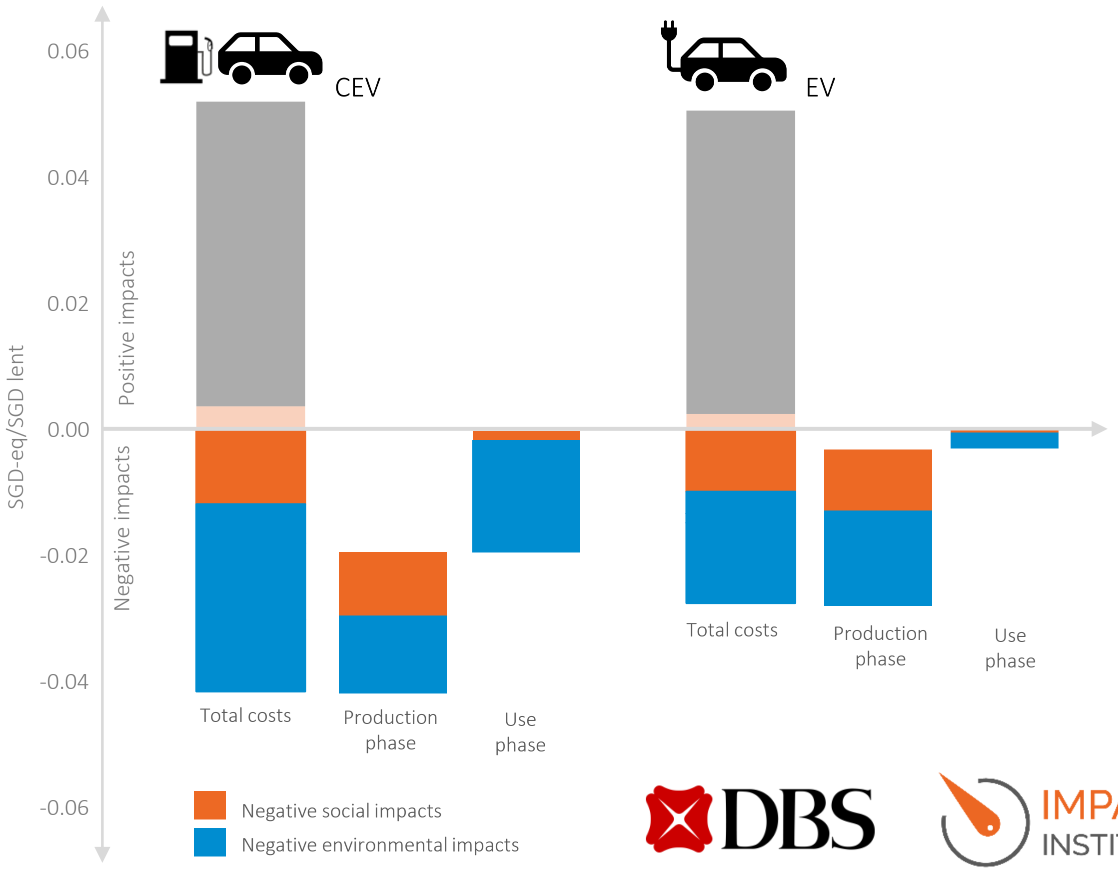
In the use phase, CEVs have significantly more environmental costs than EVs. A substantial portion of the environmental costs for CEVs is due to greenhouse gas emissions and fossil fuel depletion, which is substantially higher than the environmental costs of the electricity used by EVs (see Figure 7).

In the production phase, CEVs have slightly less environmental costs than EVs. The environmental costs for both CEVs and EVs are mainly from the mining of materials and electricity use. The battery component of EVs requires more minerals such as lithium and graphite, and its assembly is more polluting, which results in increased environmental costs for EVs.

Social costs mostly occur in the production phase for both vehicles

The production phase is the largest contributor to most social costs in both sectors. In particular, manufacturing of batteries and engines, as well as assembly, have the largest social impacts. These parts in the value chain are the most labour intensive.

Figure 7: Impacts of lending to the automotive industry *(SGD-eq/SGD lent)* classified per phase



Environmental costs of EV can be further reduced with a shift to renewable energy sources for electricity

The energy mix drives the environmental costs of the use phase of EV

The type of fuel used to produce electricity is an important factor in determining the environmental costs associated with the use of EVs. Thus, a selection of the energy mixes of markets were assessed and compared, based on EV use in 2018.[9] The energy mix of these markets is quite different (see Figure 8), with coal dominating in China, natural gas in Singapore, coal and gas in the USA, and hydro and nuclear in Europe (approximated by the largest EV markets: Norway, France and Germany).

Reducing the use of coal and natural gas can strongly reduce the environmental impact of electricity generation

Greenhouse gas (GHG) emissions lead to some of the largest negative impacts of electricity generation, followed by particulate matter formation and fossil fuel depletion (see Figure 9). In China, where electricity is predominantly generated from the burning of coal, there is a significant increase in environmental costs resulting from GHG emissions and particulate matter formation compared to other markets with different energy sources.

While China is the biggest market of EVs,[10] the environmental costs associated with the use of EVs is still considerable. However, China is projected to cut 20% of its coal in electricity generation and substitute it with more environmentally friendly sources by 2030. It is expected to increase solar and wind power generation by approximately 15% and 10%, respectively.[11] Such changes can potentially reduce the environmental costs associated with the use of EVs by approximately 33%.

Figure 8: Energy mix of selected markets

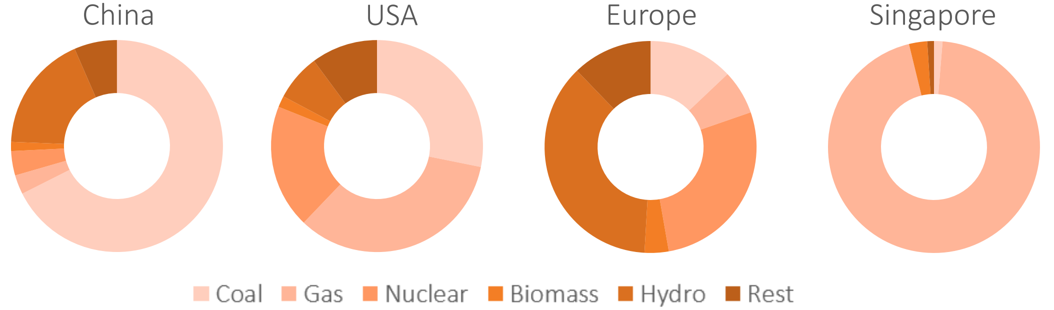
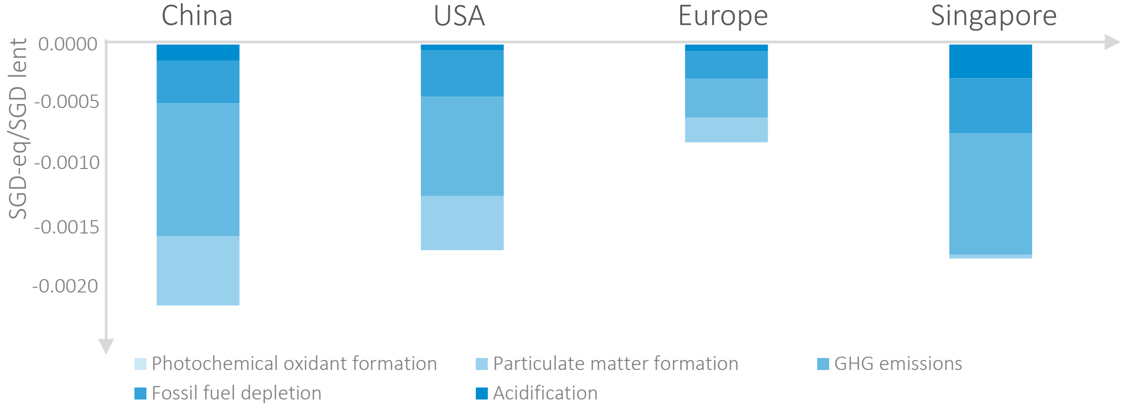


Figure 9: Breakdown of environmental costs of electricity generation in the use phase (illustrative only)



[9] IEA. (2020). Countries and regions. International Energy Agency.
[10] IEA. (2019a). Global EV Outlook 2019 – scaling-up the transition to electric mobility. International Energy Agency.
[11] IEA. (2019b). Installed capacity by technology in China in the new policies scenario, 2000 – 2040. International Energy Agency.

3 *Concluding insights*

Key insight of this study: the transition to EVs makes the automotive industry more sustainable

Focusing on the transition from CEVs towards EVs, this study provides insights into the impact of producing and driving both type of vehicles, as well as the trade-offs involved.

Insights into the benefits of the transition to electric vehicles

Electric vehicles promise to make the automotive industry more sustainable. Existing research shows a potential trade-off between somewhat higher environmental costs of production and lower environmental costs of driving an EV. This study shows that when considering the various effects, the transition from CEVs to EVs can result in a strong improvement of the environmental impact.

The largest reduction in environmental costs can occur in the use phase, due to the switch in power source from fossil fuels to electricity. The expected future increase in renewable energy sources to generate electricity can further reduce the environmental costs of driving electric vehicles. Therefore the gap between EVs and CEVs is likely to grow. In markets with higher adoption of EVs, the potential to reduce negative impacts by shifting to a greener energy mix is even greater. In contrast, the production phase is where most social issues occur. The EV sector has slightly lower social costs although less data is available on social issues.

Insights for future actions

Shifting to electric vehicles improves the impact of the automotive sector. DBS can have a positive impact by accelerating this shift through helping its clients finance the transition and manage the environmental and social risks of car manufacturing.

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4 *Appendices*

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IP&L is a methodology to assess impact in a structured way using impact pathways

The IP&L framework measures and values impacts following an impact pathway approach: a structured step-by-step approach providing a link between an activity and the resulting impacts. Figure 10 provides an visual representation. The pathway approach incorporates three key concepts for measuring and valuing impacts:

Impact measurement. Impacts were measured using extended input-output models with trade data, environmental and social footprints and combined with desktop research. Here, Impact Institute's Global Impact Database (GID) was used for baseline estimates.[12]

Impact contribution. An impact is typically not the sole responsibility of the organisation where it occurs; most impacts in the automotive value chain are shared amongst organisations active in the value chain, such as DBS. The IP&L shows the specific contribution of the organisation under review to the value creation for society.

Impact valuation. The results of an impact assessment are expressed in monetary terms (e.g. Singaporean Dollar equivalents) to allow comparison amongst impacts for communication (reporting) and decision-making (steering) purposes. In this way, for example, the non-financial benefits of employment (such as autonomy and social status) are translated into monetary terms and can be compared to the financial benefits of employment (such as salaries). Similarly, by expressing carbon emissions as the costs required to take these emissions out of the air, the societal cost-efficiency of measures to reduce the carbon footprint can be assessed.

[12] The GID contains specific impact data across the whole economy, covering 189 countries with 26 sectors. It is built by Impact Institute, based on the interconnectedness of industries in various countries and their economic, environmental and social impact from a range of global databases.

Figure 10: Illustration of impact pathway approach, from activity to impact

	Example analysis of DBS activities				
Activity DBS	Input	Output	Outcome	Impact	Valued impact
The activity of DBS (e.g., lending to the automotive sector)	DBS needs funding to provide lending	DBS provides loans to companies within the automotive sector	DBS' lending clients emit carbon emissions when producing vehicles	There is a contribution to climate change due to DBS' activities	Dollar amount that society has to pay to clean emissions

Value chain scope includes both production and use of the vehicles

The value chain scope of both vehicles covers the lifecycle from the production of vehicles through to the consumers' use of the vehicles. It involves many materials, parts and countries. In this assessment, the most important materials in producing the battery and engine components are included.

Raw materials are mined in different countries, and the countries selected for this assessment are based on their global share of the production (see Figure 11). Raw materials are then processed into components such as aluminum, steel and copper. These are used as inputs in the manufacturing stage where the car's engine or battery is assembled. The engine and battery are then assembled into the car. The car is then shipped to customers and used throughout its lifespan.

Impacts arising from the end of life are relatively small for both CEVs and EVs and are not included in the scope of this assessment.

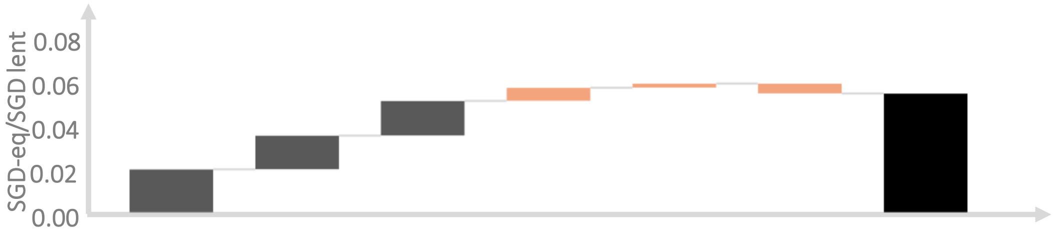
Figure 11: Value chains analysed for CEVs and EVs

	CEV	EV
Raw materials mining	Iron ore – Australia* Bauxite – China* Raw copper – Chile* Lead – China	Lithium – Australia Nickel – China Graphite – China
Components production	Aluminium – China* Steel – China* Copper – Chile*	
Components subassembly	Engine – China Lead-acid battery – China	Engine – China LiNCM battery – China
Car Assembly	CEV - China	EV - China
Consumption	Fuel - China	Electricity - China
End of life	Out of scope	Out of scope

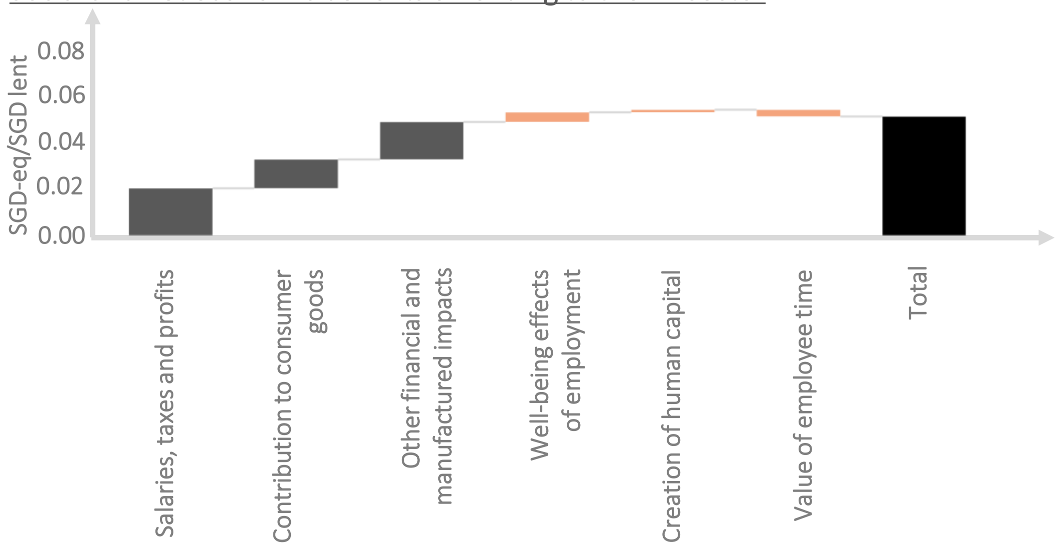
**material is used in both type of vehicles*

Breakdown of social and net economic benefits and social and environmental costs

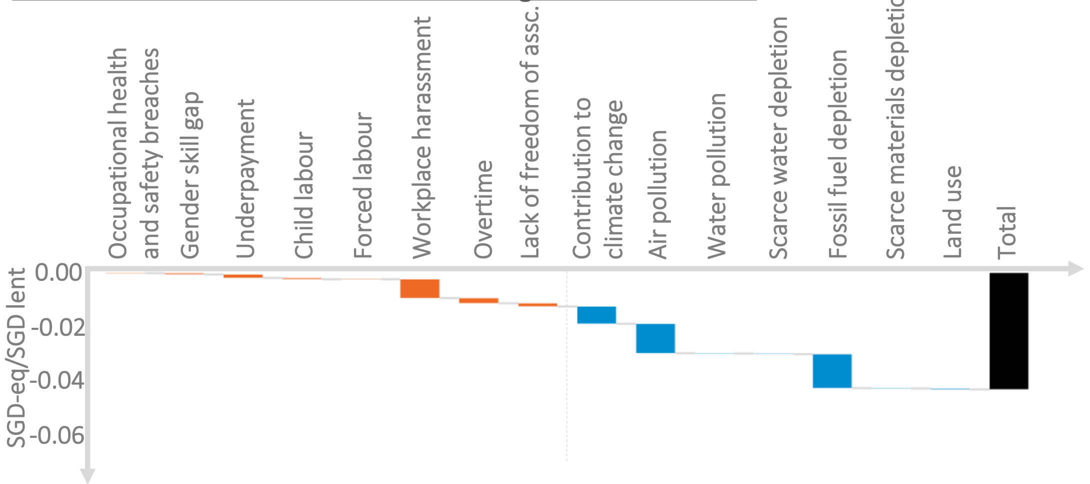
Social and net economic benefits of lending to the CEV sector



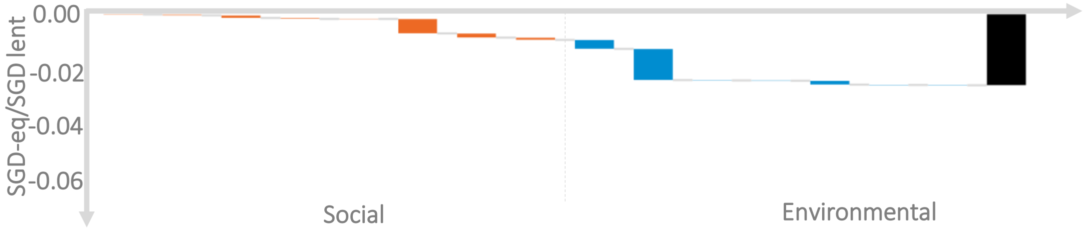
Social and net economic benefits of lending to the EV sector



Social and environmental costs of lending to the CEV sector



Social and environmental costs of lending to the EV sector



Impacts related to a well-being contribution and respecting rights are presented separately, because a breach of human or environmental rights can never be offset (netted) by a positive contribution to well being, following the No Offsetting of External Costs principle stated in FIS (2019).

Definitions of capitals used in the IP&L

Capital	Definition
Financial	All assets consisting of a form of money and other financial assets
Manufactured	All tangible assets including goods delivered to consumers and the value created by the services
Human	The increase in well-being of employees caused by employment through effects on, i.a. self-esteem, autonomy, social relations, and social status
Social	All value relating to communities, groups of people, including trust, networks, and norms
Natural	Natural assets such as water, air and scarce resources
Intellectual	All value relating to individual people, including health and competences

The six capitals defined in the IP&L methodology follows a rigorous categorisation based on The International <IR> Framework.

Definition of impact categories: Social and net economic benefits

Domain	Capital	Impact Category	Definition
Economic	Financial Capital	Salaries, taxes and profits	The financial value created due to lending which contributes to the economy (GDP).
Economic	Financial Capital	Other financial impacts	The impacts created due to money-flow throughout the value chain. They represent money exchanges between stakeholders (e.g. between a business and a consumer or between two businesses) in the value chain. Note that, the net effect of these exchanges is zero.
Economic	Manufac-tured Capital	Contribution to consumer goods	The value to consumers of the final goods and services produced in the value chain (e.g. products containing palm oil).
Economic	Manufac-tured Capital	Other manufactured impacts	The net effect of investments in property and equipment and the consumption (depreciation) of this.
Social	Human Capital	Well-being effects of employment	The increase in well-being of employees caused by employment through effects on, i.a. self-esteem, autonomy, social relations, and social status.
Social	Human Capital	Creation of human capital	The value of an increase in productivity of employees as a result of being employed (e.g. through gaining experience and learning on the job).
Social	Human Capital	Value of employee time	The value of the time employees spent on work, representing the opportunity cost.

Definition of impact categories: Social and environmental costs (1/2)

Domain	Capital	Impact Category	Definition
Social	Human Capital	Occupational health and safety breaches	The loss of healthy life years due to fatal and non-fatal occupational accidents in the workplace
	Social Capital	Gender skill gap	Presence of discrimination (e.g. unequal access to highly skilled jobs) based on gender
		Underpayment	Insufficient financial compensation for work, expressed as the difference between the actual income workers receive and the living wage (which provides a decent standard of living)
		Child labour	Presence of child labour throughout the value chain
		Forced labour	The presence of forced labour constitutes a negative impact and an external cost. This applies both to forced labour at the organisation in scope (direct impact) or forced labour as an indirect impact
		Workplace harassment	Presence of workplace harassment, both sexual and non-sexual, physical and non-physical, in own operations and in the value chains
		Overtime	This refers to workers experiencing excessive working hours (more than the maximum legal working hours). Overtime at the company in scope (direct impact) or as an indirect impact constitutes a negative impact and an external cost
		Lack of freedom of association	Lack of freedom of association means that workers are denied the freedom to form organisations of their choice, to promote and defend their interests, and to negotiate collectively with other parties. Lack of freedom of association at the company in scope (direct impact) or as an indirect impact constitutes a negative impact and an external cost

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Definition of impact categories: Social and environmental costs (2/2)

Domain	Capital	Impact Category	Definition
Environ-mental	Natural Capital	Contribution to climate change	Contribution to climate change via the emissions of greenhouse gases
		Air pollution	Negative effects of pollution to air quality
		Water pollution	Negative effects of pollution to water quality
		Scarce water depletion	The use of scarce water resources, such that these become unavailable to others
		Fossil fuel depletion	The use of scarce energy resources, such that these become unavailable to others
		Scarce materials depletion	The extraction of scarce, non-renewable resources besides fossil fuel (e.g. minerals, metals), such that these become unavailable to others
		Land use	The occupation of land, harming the natural habitats and ecosystems, leading to biodiversity loss and loss of ecosystem services

Key assumptions and limitations

Key assumptions:

- The impact that is attributed to DBS is determined by its net interest income (amongst other factors). In this assessment, a 2% net interest income is assumed as a proxy.
- The impact assessed is the impact of DBS' lending activity as compared to a reference in which no lending is provided.
- The model focuses on impacts and car components that drive the differences in impact between CEV and EV.
- There is limited quantitative data available for social impacts in China. If qualitative data is available, global average data from Global Impact Database (GID) is used. In cases where no indications of social issues were found, the social impacts are assumed to be absent (e.g. child labour in China is assumed to be absent in the mining sectors, except for coal).

Key limitations:

- Impacts with high uncertainty and complexity are beyond the scope: this includes impacts outside of the organisation's value chains (e.g. how lending policies of DBS influences other banks or government policies), multipliers (e.g. to which degree a dollar in tax income generates more or less well-being than a dollar in income to households) and higher order effects (e.g. whether higher salaries can lead to more consumption and CO_2 emissions).
- Impacts from transportation of goods and the end of life phase are not included,
- Data from different life cycle inventories have been included, which may have been built on different LCA definitions and methods.
- For some cases, the best available data is not from the desired year of measurement. Therefore, adjustments are made through, for example, conversion which may lead to uncertainties.
- A proxy is used when specific bottom-up data is not available (for example, for the social impacts of lithium and iron ore mining in Australia, data points were used from the general mining sector in Australia), which makes the results less granular.
- Only absolute impacts were measured. Marginal impacts were beyond the scope of this assessment, as it would entail an analysis of policies of other banks and their effectiveness.
- The use of industry averages for several impacts and part of the value chain leads to approximation of the actual impacts. Therefore, the estimates are approximations and contain uncertainties.
- The difference in perceived value for the consumer is not included, e.g. the difference in price to fuel throughout the lifetime of the vehicle, and accessibility of charging stations is beyond the scope of the assessment.

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