



Insurance Report

Whole vehicle theft losses

2021–23 passenger cars, pickups, SUVs, and vans

WT-23 May 2024



Highlights

Passenger vehicles from the 2021–23 model years had a combined whole vehicle theft claim frequency of 0.49 claims per 1,000 insured vehicle years or 1 claim for every 2,040 insured vehicle years. The average loss payment per whole vehicle theft (claim severity) was \$50,954. That translates to an average loss payment per insured vehicle year (overall losses) of \$25.

The Dodge Durango SRT Hellcat four-door, a large SUV, had the highest whole vehicle theft claim frequency at nearly 53 times the all-passenger-vehicle average. The Tesla Model 3 electric four-door 4WD, a midsize luxury car, had the lowest whole vehicle theft claim frequency at just 1% of the all-passenger-vehicle average.

2024 Board of Directors

Chair

Jeff Kinsey, State Farm Insurance Companies

Vice Chair

Dawn Lee, PEMCO Mutual Insurance Company

Prior Chair

Stefanie Zacchera, The Hartford

Gavin Blair, The Hanover Insurance Group

Chad Covelli, Rockingham Insurance

Olivia Doll, Progressive Insurance

Ivan Fernandez, USAA

Robert Harrington, Erie Insurance Group

Joseph Highbarger, American National

Paul Hurd, Farmers Insurance Group

Tim Hyman, American Family Insurance

Thomas Karol, National Association of Mutual Insurance Companies

Guillermo Leiva, Liberty Mutual Insurance

David MacInnis, Allstate Insurance Group

Lynn Malloney, Amica Mutual Insurance Company

Sean McAllister, NJM Insurance Group

Thomas G. Myers, Plymouth Rock Assurance

Robert C. Passmore, American Property Casualty Insurance Association

Rob Payne, Kentucky Farm Bureau Mutual Insurance Companies

Harry Todd Pearce, GEICO Corporation

Anthony E. Ptasznik, Auto Club Group

Michelle Santos, The Travelers Companies, Inc.

Felipe Teixeira, COUNTRY Financial

Shannon Terry, Nationwide

Todd Walker, CSAA Insurance Group

Hui Wang, CHUBB

David L. Harkey, Highway Loss Data Institute

The membership of the Highway Loss Data Institute Board of Directors represents insurance companies that supply data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by automobile insurers.

Contents

Introduction	1
Whole vehicle theft losses by vehicle type	1
Table 1: Whole vehicle theft losses for 2021–23 model years by vehicle type after all-variable standardization.....	1
Whole vehicle theft losses by class and size	2
Figure 1: Relative whole vehicle theft claim frequencies by class and size, 2021–23 model years	2
Figure 2: Relative whole vehicle theft claim severities by class and size, 2021–23 model years.....	2
Figure 3: Relative whole vehicle theft overall losses by class and size, 2021–23 model years.....	3
Lowest and highest whole vehicle theft losses	3
Table 2: Highest whole vehicle theft claim frequencies, 2021–23 model years.....	3
Table 3: Lowest whole vehicle theft claim frequencies, 2021–23 model years	4
Vehicle series whole vehicle theft losses	5
Table 4: Whole vehicle theft losses by series, 2021–23 model years.....	5
References	13
Appendix: methodology	14
Figure A1: Collision total loss likelihood relative to claim payments and vehicle base price	14
Figure A2: Chevrolet Silverado 1500 crew cab 4WD theft claim size distribution	15
Figure A3: Subaru Forester four-door 4WD with EyeSight theft claim size distribution	15
Figure A4: Toyota Corolla theft claim size distribution	15
Table A1: Whole vehicle theft thresholds by vehicle age.....	16
Figure A5: Collision total loss likelihood relative to claim payments and vehicle base price by vehicle age	16

COPYRIGHTED DOCUMENT, DISTRIBUTION RESTRICTED

©2024 by the Highway Loss Data Institute. All rights reserved. Distribution of this report is restricted. No part of this publication may be reproduced, or stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright owner. Possession of this publication does not confer the right to print, reprint, publish, copy, sell, file, or use this report in any manner without the written permission of the copyright owner.

Companies supplying data

This report is based on loss data supplied by the following insurers:

21st Century Insurance
Allstate Insurance Group
American Family Insurance
American National
Amica Mutual Insurance
Auto Club Group
Automobile Insurers Bureau of Massachusetts
CHUBB
COUNTRY Financial
CSAA Insurance Group
Erie Insurance Group
Farm Bureau Financial Services
Farm Bureau Insurance of Tennessee
Farmers Insurance Group
GEICO Corporation
The Hanover Insurance Group
The Hartford
Kentucky Farm Bureau Mutual Insurance Companies
Liberty Mutual Insurance
National General Insurance
Nationwide
NJM Insurance Group
PEMCO Mutual Insurance Company
Plymouth Rock Assurance
Progressive Insurance
Rockingham Insurance
Safeco Insurance
SECURA Insurance
Sentry Insurance
Shelter Insurance
State Farm Insurance Companies
Texas Farm Bureau Insurance
The Travelers Companies, Inc.
USAA

► Introduction

Theft claims under comprehensive coverage in the Highway Loss Data Institute (HLDI) database can originate from three different types of theft: theft of vehicle contents, theft of vehicle parts, and theft of the entire vehicle. The purpose of the current analysis is to quantify the extent to which whole vehicle theft varies by vehicle size/class and make/series. Most companies do not supply data to HLDI about the type of theft. Following the methodology defined in the **Appendix**, vehicle age and price were used to classify theft losses.

This report is an update of previous HLDI reports. It presents whole vehicle theft losses under comprehensive coverage for passenger vehicles produced during model years 2021–23. Vehicles in this report were up to 4 years old during the period studied.

Results for all 2021–23 vehicles are included in the overall totals and in the separate totals for class and size subgroups in the principal table (**Table 4**). A detailed description of these class and size subgroups appears in the HLDI *Technical Appendix* (2010). Only vehicles with 20,000 insured vehicle years of exposure or 100 claims are included. A total of 287 passenger car, pickup, SUV, and van series met one or both of these reporting criteria.

Results in this report were standardized to control for the effect of demographic and geographic variables to accurately assess the contribution of the vehicle to insurance losses. Losses were standardized by calendar year; model year; garaging state; number of registered vehicles per square mile (vehicle density); deductible; risk; and driver age, gender, and marital status. Standardization was accomplished using a two-step process. First, regression models were constructed to produce estimates for each variable for claim frequency, claim severity, and overall losses. Then, the estimates were reweighted so that every vehicle has the same exposure distribution across all of the variables in the model.

This standardization procedure was first described in HLDI special report A-77, *Make and Series Results and Modeling* (2008). Further modifications were described in special report A-82, *Collision Losses After All-Variable Standardization* (2009). For details about this procedure, see *HLDI Loss Data Computation Methods* (2018).

► Whole vehicle theft losses by vehicle type

Table 1 lists whole vehicle theft losses for 2021–23 passenger vehicles by vehicle type after all-variable standardization. All 2021–23 model year passenger vehicles combined had a whole vehicle theft claim frequency of 0.49 claims per 1,000 insured vehicle years. The average loss payment per whole vehicle theft (claim severity) was \$50,954. As a result, the average loss payment per insured vehicle year (overall losses) was \$25. Pickups had the highest whole vehicle theft claim frequency (0.82), the highest claim severity (\$65,455), and therefore the highest overall losses (\$53).

Table 1: Whole vehicle theft losses for 2021–23 model years by vehicle type after all-variable standardization

Vehicle type	Claim frequency	Claim severity	Overall loss
Passenger cars	0.60	\$41,215	\$25
Pickups	0.82	\$65,455	\$53
SUVs	0.35	\$48,844	\$17
All passenger vehicles*	0.49	\$50,954	\$25

*All-passenger-vehicle total includes 41,282 years of exposure and 17 claims from vans.

► Whole vehicle theft losses by class and size

Figures 1–3 show relative whole vehicle theft claim frequencies, claim severities, and overall losses by vehicle class and size for 2021–23 models. In each figure, the value 100 represents the average result for all passenger vehicles.

Relative claim frequencies ranged from 13 for two-door minicars and mini sports cars to 817 for large four-door cars. Large two-door cars, a category that includes only the Dodge Challenger, had the second-highest relative whole vehicle theft claim frequency (770) (Figure 1). Relative claim severities ranged from 40 for four-door minicars, to 283 for very large luxury cars followed by very large luxury SUVs (282) (Figure 2). Relative overall losses ranged from 8 for two-door minicars to 953 for large four-door cars (Figure 3). Four-door microcars, small two-door cars, small sports cars, small luxury cars, mini station wagons, midsize vans, and large vans did not have enough exposure to produce credible results.

Figure 1: Relative whole vehicle theft claim frequencies by class and size, 2021–23 model years

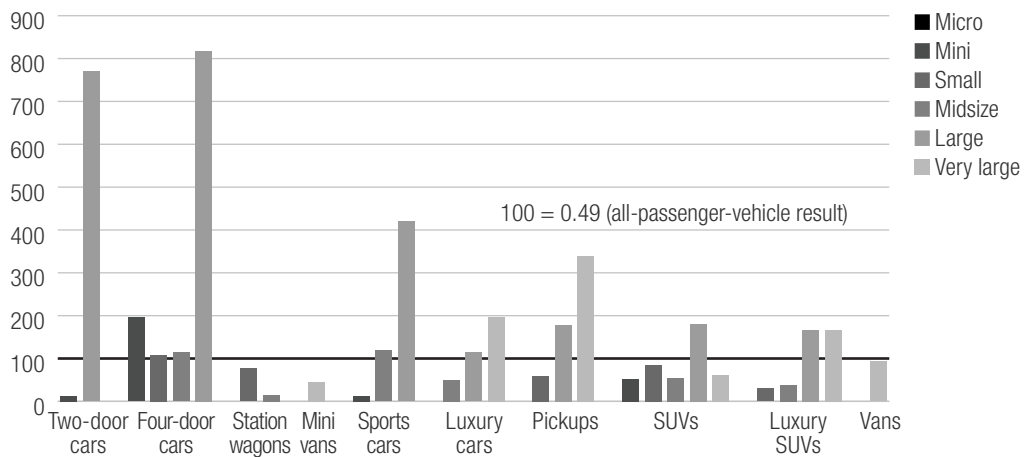


Figure 2: Relative whole vehicle theft claim severities by class and size, 2021–23 model years

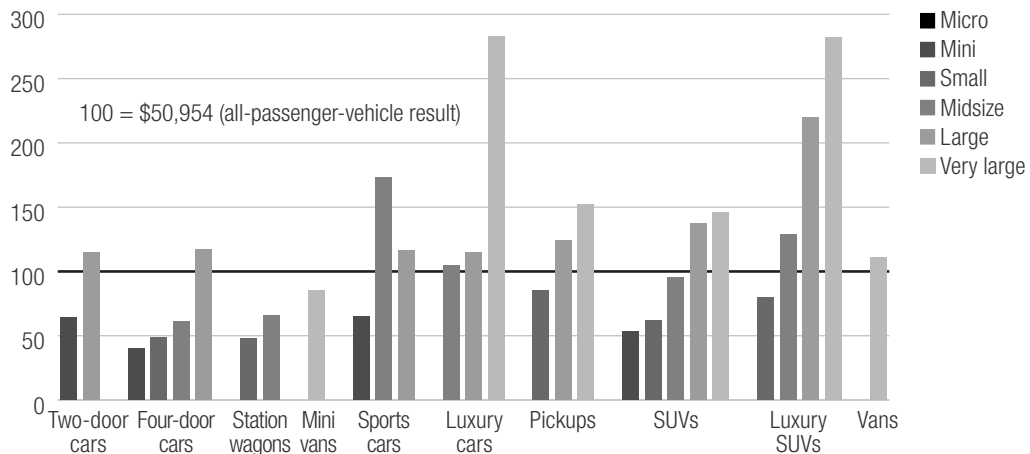
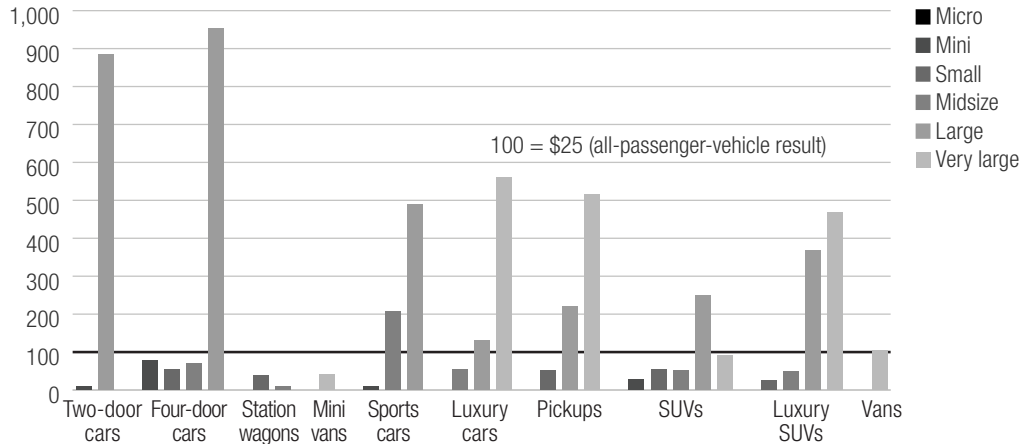


Figure 3: Relative whole vehicle theft overall losses by class and size, 2021–23 model years



► **Lowest and highest whole vehicle theft losses**

Table 2 lists the 20 vehicle series with the highest claim frequencies for whole vehicle theft. Many of the vehicles included on this list are expensive or boast high horsepower. The Durango SRT Hellcat four-door, a large SUV, had the worst result with a relative claim frequency of 5,282. Eighteen of the 20 vehicle series with the worst theft claim frequencies had overall losses that were more than twice the all-passenger-vehicle average.

Table 2: Highest whole vehicle theft claim frequencies, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Dodge	Durango SRT Hellcat 4dr	21–23	5,573	144	5,282	199	10,515
Dodge	Charger SRT Hellcat	21–23	8,646	213	5,028	182	9,162
Dodge	Charger HEMI	21–23	72,395	788	2,221	105	2,339
Dodge	Challenger	21–23	115,093	404	717	98	702
GMC	Sierra 2500 crew cab 4WD	21–23	135,602	473	712	150	1,071
Acura	TLX 4dr 4WD	21–23	40,075	106	539	94	504
GMC	Sierra 1500 crew cab	21–23	55,132	134	495	101	500
GMC	Sierra 3500 crew cab 4WD	21–23	53,086	122	469	159	746
Chevrolet	Camaro 2dr	21–23	69,594	153	448	89	398
GMC	Sierra 1500 crew cab 4WD	21–23	474,359	963	414	117	485
Dodge	Durango 4dr 4WD	21–23	111,186	223	409	97	397
Kia	Forte	21–23	381,201	760	407	44	180
Kia	Rio	21–23	72,554	124	348	40	141
Chevrolet	Silverado 3500 crew cab 4WD	21–23	58,044	95	335	148	495
Ram	3500 crew cab LWB 4WD	21–23	66,231	106	327	136	444
Ram	1500 crew cab SWB 4WD	21–23	604,810	951	321	165	528
Nissan	Maxima	21–23	29,022	45	315	76	241
Chevrolet	Silverado 2500 crew cab 4WD	21–23	183,660	278	309	137	423
BMW	X6 4dr 4WD	21–23	34,179	48	285	160	457
BMW	X7 4dr 4WD	21–23	93,971	128	278	173	480

Table 3 lists the 20 vehicle series with the lowest relative claim frequencies for whole vehicle theft. Five of the 20 vehicles are electric — of those, four are manufactured by Tesla — and an additional four are hybrids or plug-in hybrids. The Tesla Model 3 electric four-door 4WD, a midsize luxury car, headed the list with a relative claim frequency of 1. All the vehicles with the best results had whole vehicle theft claim frequencies that were less than 15% of the all-passenger-vehicle average. Relative overall losses were also less than a quarter of the all-passenger-vehicle average for all the vehicles on this list.

Table 3: Lowest whole vehicle theft claim frequencies, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Tesla	Model 3 electric 4dr 4WD	21–23	284,468	2	1	129	2
Tesla	Model Y electric 4dr 4WD	21–23	704,206	8	2	112	3
Tesla	Model 3 electric 4dr	21–23	226,700	4	3	93	3
Hyundai	Tucson hybrid 4dr 4WD	22–23	82,623	2	5	81	4
Volvo	XC90 4dr 4WD	21–23	99,190	3	6	104	6
Ford	Mustang Mach-E electric 4dr 4WD	21–23	68,494	2	6	138	8
GMC	Acadia 4dr	21–23	88,682	3	8	75	6
GMC	Acadia 4dr 4WD	21–23	126,694	5	8	77	6
Volvo	XC90 plug-in hybrid 4dr 4WD	21–23	40,667	2	9	153	14
Volvo	XC60 4dr 4WD	21–23	101,773	5	9	99	9
Lexus	UX 250 hybrid 4dr 4WD	21–23	35,688	2	10	83	8
Volvo	XC40 4dr 4WD	21–23	74,498	4	10	110	11
Tesla	Model S 4dr electric 4WD	21–23	68,493	3	10	230	24
Toyota	RAV4 plug-in hybrid 4dr 4WD	21–23	93,963	5	10	91	10
GMC	Terrain 4dr 4WD	21–23	115,265	6	11	71	8
Chevrolet	Equinox 4dr 4WD	21–23	249,339	13	11	62	7
BMW	3 series 4dr	21–23	49,778	3	12	85	10
Chevrolet	Trailblazer 4dr 4WD	21–23	148,288	9	12	56	7
Lincoln	Nautilus 4dr 4WD	21–23	36,765	2	12	109	13
Land Rover	Defender 110 4dr 4WD	21–23	40,965	2	12	178	22

► Vehicle series whole vehicle theft losses

Detailed whole vehicle theft results for all 2021–23 passenger vehicles with at least 20,000 insured vehicle years of exposure or 100 paid whole vehicle theft claims are listed in **Table 4**. The values reported are total exposure (insured vehicle years), number of claims, and relative results for three loss categories: claim frequency, claim severity, and overall losses. The value 100 corresponds to the average result for all passenger vehicles in each loss category. Individual series are listed in ascending order of relative overall losses within each size and class group.

The total exposure accumulated for the three model years was nearly 11.5 million insured vehicle years for passenger cars and over 33 million insured vehicle years for pickups, SUVs, and vans. Whole vehicle theft claims numbered around 7,000 for passenger cars and nearly 15,000 for pickups, SUVs, and vans.

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
All passenger vehicles		21–23	44,485,860	21,804	100=0.49	100=\$50,954	100=\$25
All passenger cars		21–23	11,483,838	6,878	122	81	99
MICROCARS							
4-door		21–23	18,334	10	—	—	—
MINICARS							
2-door		21–23	26,813	2	13	64	8
Mini	Cooper	21–23	26,813	2	13	64	8
4-door		21–23	213,938	205	196	40	79
Mini	Cooper	21–23	20,034	2	17	82	14
Kia	Rio	21–23	72,554	124	348	40	141
Station wagons		21–23	13,101	13	—	—	—
Sports		21–23	30,702	2	13	65	9
Mazda	MX-5 Miata convertible	21–23	30,702	2	13	65	9
SMALL CARS							
2-door		21–23	8,387	5	—	—	—
4-door		21–23	3,353,162	1,789	109	49	53
Nissan	Leaf electric	21–23	37,044	3	15	53	8
Mazda	3 hatchback 4WD	21–23	28,227	2	18	62	11
Mazda	3	21–23	48,259	6	26	48	13
Mazda	3 4WD	21–23	23,194	3	22	61	14
Subaru	Impreza 4WD with EyeSight	21–23	34,334	6	37	45	17
Toyota	Corolla hatchback	21–23	82,024	14	35	51	18
Hyundai	Elantra hybrid	21–23	38,961	5	25	73	18
Nissan	Kicks	21–23	155,429	39	52	46	24
Toyota	Corolla	21–23	633,946	163	53	48	25
Acura	Integra 4dr	23	22,517	4	39	68	26
Honda	Civic hatchback	22–23	89,603	21	47	59	28
Toyota	Corolla hybrid	21–23	114,863	29	51	57	29
Subaru	WRX 4WD	21–23	65,673	15	46	80	37
Nissan	Sentra	21–23	273,747	107	80	47	37
Honda	Civic	22–23	281,440	96	70	58	40
Hyundai	Elantra	21–23	353,653	150	87	47	40
Nissan	Versa	21–23	71,046	39	113	39	44
Kia	Forte	21–23	381,201	760	407	44	180

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Station wagons		21–23	980,683	371	77	48	37
Subaru	Crosstrek 4WD with EyeSight	21–23	606,312	48	16	58	9
Subaru	Crosstrek 4WD	21–23	29,382	3	22	61	13
Subaru	Impreza 4WD with EyeSight	21–23	85,873	19	44	50	22
Kia	Soul	21–23	247,228	298	246	46	112
MIDSIZE CARS							
4-door		21–23	2,797,804	1,569	114	61	70
Hyundai	Sonata hybrid	21–23	34,614	3	18	62	11
Subaru	Legacy 4WD with EyeSight	21–23	86,103	10	23	58	13
Volkswagen	Jetta	21–23	156,283	31	40	48	19
Hyundai	Sonata	21–23	230,539	50	44	55	24
Nissan	Altima 4WD	21–23	62,532	15	50	59	30
Chevrolet	Malibu	21–23	111,921	34	62	51	31
Honda	Accord hybrid	23	29,132	7	50	69	34
Toyota	Camry 4WD	21–23	112,319	32	58	64	37
Toyota	Camry hybrid	21–23	132,207	35	54	71	38
Toyota	Camry	21–23	632,203	196	63	60	38
Nissan	Altima	21–23	198,731	79	81	54	44
Honda	Accord	23	22,722	9	77	61	47
Kia	K5 2WD/4WD	21–23	317,566	157	101	59	59
Nissan	Maxima	21–23	29,022	45	315	76	241
Station wagons		21–23	606,405	44	15	66	10
Subaru	Outback 4WD with EyeSight	21–23	606,405	44	15	66	10
Sports		21–23	244,918	143	119	173	206
Ford	Mustang 2dr	21–23	32,929	5	31	68	21
Toyota	GR Supra 2dr	21–23	27,447	6	48	115	55
Ford	Mustang GT 2dr	21–23	47,369	45	195	86	168
Chevrolet	Corvette convertible	21–23	44,940	27	122	204	248
Chevrolet	Corvette 2dr	21–23	55,159	46	172	173	297
Luxury		21–23	1,356,640	332	50	105	53
Tesla	Model 3 electric 4dr 4WD	21–23	284,468	2	1	129	2
Tesla	Model 3 electric 4dr	21–23	226,700	4	3	93	3
BMW	3 series 4dr	21–23	49,778	3	12	85	10
Lexus	IS 300 4dr	21–23	20,062	2	21	80	17
Lexus	ES 350 4dr	21–23	106,222	11	21	84	18
Audi	A4 4dr 4WD	21–23	44,835	5	24	87	21
BMW	2 series 4dr 4WD	21–23	20,865	3	30	75	22
Lexus	ES 300h hybrid 4dr	21–23	45,501	6	29	100	29
Audi	A5 4dr 4WD hatchback	21–23	29,983	5	31	96	30
BMW	3 series 4dr 4WD	21–23	50,943	14	57	90	51
Lexus	IS 350 4dr	21–23	35,316	10	58	92	53
LARGE CARS							
2-door		21–23	137,737	520	770	115	885
Dodge	Challenger	21–23	115,093	404	717	98	702

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
4-door		21–23	280,123	1,121	817	117	953
Kia	Stinger 2WD/4WD	21–23	45,422	22	99	90	90
Dodge	Charger	21–23	60,110	49	166	69	115
Chrysler	300	21–23	20,571	21	212	65	138
Dodge	Charger HEMI	21–23	72,395	788	2,221	105	2,339
Dodge	Charger SRT Hellcat	21–23	8,646	213	5,028	182	9,162
Sports		21–23	130,494	268	420	116	488
Porsche	Taycan electric 4dr 4WD	21–23	23,645	4	32	223	72
Chevrolet	Camaro 2dr	21–23	69,594	153	448	89	398
Luxury		21–23	417,294	233	114	115	131
Genesis	G70 4dr 2WD/4WD	21–23	40,540	4	21	87	19
Tesla	Model S 4dr electric 4WD	21–23	68,493	3	10	230	24
BMW	5 series 4dr	21–23	31,969	4	26	105	27
Mercedes-Benz	E class 4dr	21–23	22,567	3	31	110	34
Mercedes-Benz	E class 4dr 4WD	21–23	23,040	4	33	125	41
BMW	5 series 4dr 4WD	21–23	37,813	13	73	118	86
Acura	TLX 4dr	21–23	44,309	44	201	79	158
Acura	TLX 4dr 4WD	21–23	40,075	106	539	94	504
VERY LARGE CARS							
Minivans		21–23	794,676	181	46	85	40
Toyota	Sienna hybrid van 4WD	21–23	116,651	12	21	96	20
Chrysler	Pacifica plug-in hybrid	21–23	39,205	4	22	93	20
Chrysler	Pacifica 4WD	21–23	35,944	5	28	90	25
Toyota	Sienna hybrid van	21–23	174,381	23	26	100	26
Chrysler	Pacifica	21–23	58,728	14	48	75	36
Kia	Carnival	22–23	73,660	16	45	83	37
Honda	Odyssey	21–23	281,134	96	69	84	58
Luxury		21–23	72,630	70	197	283	559
Mercedes-Benz	S class 4dr LWB 4WD	21–23	36,331	44	249	240	597
All pickups, SUVs, and vans		21–23	33,002,020	14,926	92	109	100
PICKUPS							
All pickups		21–23	7,260,548	5,927	167	128	214
All small pickups		21–23	2,219,969	649	60	85	51
2-door plus		21–23	119,699	16	28	64	18
Toyota	Tacoma xtra cab	21–23	34,438	4	26	60	16
Toyota	Tacoma xtra cab 4WD	21–23	59,745	7	24	71	17
4-door		21–23	2,100,270	633	61	86	53
Ford	Ranger crew cab 4WD	21–23	130,918	9	14	76	11
Ford	Maverick hybrid crew cab pickup	22–23	52,442	4	16	70	11
Nissan	Frontier crew cab SWB	22–23	41,598	6	30	69	21
Ford	Maverick crew cab pickup 4WD	22–23	49,679	8	34	69	24
Hyundai	Santa Cruz crew cab pickup 4WD	22–23	61,245	11	38	65	25
Ford	Ranger crew cab	21–23	43,080	9	44	73	32
Nissan	Frontier crew cab SWB 4WD	22–23	74,227	16	45	76	34

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Toyota	Tacoma double cab	21–23	204,325	61	61	73	44
Toyota	Tacoma double cab 4WD	21–23	491,269	130	54	85	46
Toyota	Tacoma double cab LWB 4WD	21–23	106,058	32	62	88	54
Honda	Ridgeline crew cab 4WD	21–23	136,060	48	71	82	59
Jeep	Gladiator crew cab pickup convertible 4WD	21–23	301,790	222	150	97	146
All large pickups		21–23	3,924,284	3,417	178	124	220
2-door		21–23	20,810	8	80	80	64
2-door plus		21–23	110,263	23	43	81	34
Ram	1500 Classic ext. cab 4WD	21–23	42,521	6	27	74	20
Ford	F-150 SuperCab 4WD	21–23	42,530	8	38	96	36
4-door		21–23	3,793,211	3,386	182	124	227
Chevrolet	Silverado 1500 ext. cab 4WD	21–23	39,279	3	14	88	12
GMC	Sierra 1500 ext. cab 4WD	21–23	29,757	4	27	87	23
Toyota	Tundra CrewMax	22–23	22,738	2	22	122	26
Toyota	Tundra CrewMax 4WD	22–23	72,091	8	24	121	29
Nissan	Titan crew cab short bed 4WD	21–23	54,125	8	30	101	30
Ford	F-150 SuperCrew	21–23	89,589	19	44	89	39
Ford	F-150 SuperCrew 4WD	21–23	600,307	144	49	126	62
Ford	F-150 hybrid crew 4WD	21–23	116,468	26	46	138	63
Ram	1500 quad cab 4WD	21–23	100,145	40	82	86	71
Ram	1500 crew cab LWB 4WD	21–23	50,621	23	91	107	98
Ram	1500 quad cab	21–23	35,301	23	136	77	105
Ram	1500 crew cab SWB	21–23	104,899	64	124	96	118
Chevrolet	Silverado 1500 crew cab	21–23	185,239	177	195	90	175
Chevrolet	Silverado 1500 crew cab 4WD	21–23	867,802	734	173	104	180
GMC	Sierra 1500 crew cab 4WD	21–23	474,359	963	414	117	485
GMC	Sierra 1500 crew cab	21–23	55,132	134	495	101	500
Ram	1500 crew cab SWB 4WD	21–23	604,810	951	321	165	528
All very large pickups		21–23	1,116,295	1,861	340	152	516
2-door plus		21–23	10,679	5	—	—	—
4-door		21–23	1,105,616	1,856	343	152	520
Ram	2500 crew cab SWB 4WD	21–23	205,599	150	149	131	195
Ram	2500 mega cab 4WD	21–23	25,664	25	199	152	304
Chevrolet	Silverado 2500 crew cab 4WD	21–23	183,660	278	309	137	423
Ram	3500 crew cab LWB 4WD	21–23	66,231	106	327	136	444
Chevrolet	Silverado 3500 crew cab 4WD	21–23	58,044	95	335	148	495
GMC	Sierra 3500 crew cab 4WD	21–23	53,086	122	469	159	746
GMC	Sierra 2500 crew cab 4WD	21–23	135,602	473	712	150	1,071
SUVs							
All SUVs		21–23	25,700,188	8,981	71	96	68
Mini SUVs		21–23	563,996	143	52	53	28
Hyundai	Venue 4dr	21–23	100,157	22	45	44	20
Honda	HR-V 4dr 4WD	23	41,926	9	46	62	28

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Small SUVs		21–23	10,002,269	4,158	85	62	53
Hyundai	Tucson hybrid 4dr 4WD	22–23	82,623	2	5	81	4
Chevrolet	Trailblazer 4dr 4WD	21–23	148,288	9	12	56	7
Chevrolet	Equinox 4dr 4WD	21–23	249,339	13	11	62	7
GMC	Terrain 4dr 4WD	21–23	115,265	6	11	71	8
Toyota	Corolla Cross 4dr 4WD	22–23	50,694	3	12	66	8
Subaru	Forester 4dr 4WD with EyeSight	21–23	587,203	40	14	64	9
Toyota	RAV4 plug-in hybrid 4dr 4WD	21–23	93,963	5	10	91	10
Mazda	CX-5 4dr 4WD	21–23	522,588	40	15	64	10
Mazda	CX-30 4dr 4WD	21–23	188,072	17	18	56	10
Toyota	Corolla Cross 4dr	22–23	39,079	4	19	60	11
Hyundai	Santa Fe hybrid 4dr 4WD	21–23	29,827	2	16	76	12
Volkswagen	Taos 4dr	22–23	70,528	8	23	55	13
Ford	Escape hybrid 4dr 4WD	21–23	24,049	2	19	66	13
Toyota	Venza hybrid 4dr 4WD	21–23	205,246	17	17	76	13
Volkswagen	Taos 4dr 4WD	22–23	57,671	7	23	62	14
Chevrolet	Equinox 4dr	21–23	305,498	38	25	57	15
Mitsubishi	Outlander 4dr	22–23	43,604	5	26	58	15
Nissan	Rogue 4dr 4WD	21–23	382,264	45	24	63	15
Ford	Escape 4dr 4WD	21–23	133,333	16	25	62	15
Hyundai	Tucson 4dr	22–23	155,752	20	26	60	16
Nissan	Rogue 4dr	21–23	273,542	35	26	60	16
Jeep	Compass 4dr 4WD	21–23	236,454	32	27	60	16
Chevrolet	Trailblazer 4dr	21–23	220,485	34	31	53	16
Ford	Escape 4dr	21–23	79,494	11	29	59	17
Ford	Bronco Sport 4dr 4WD	21–23	378,419	45	24	70	17
Jeep	Renegade 4dr 4WD	21–23	91,296	14	31	55	17
Kia	Sportage 4dr	23	58,741	8	27	62	17
Mazda	CX-50 4dr 4WD	23	37,527	4	24	74	17
Hyundai	Santa Fe 4dr	21–23	142,194	21	31	62	19
Toyota	RAV4 4dr	21–23	437,034	64	30	65	20
GMC	Terrain 4dr	21–23	90,866	14	30	65	20
Hyundai	Santa Fe 4dr 4WD	21–23	179,295	29	33	64	21
Hyundai	Tucson 4dr 4WD	22–23	218,504	38	35	62	22
Mitsubishi	Eclipse Cross 4dr 4WD	22–23	24,134	5	39	56	22
Kia	Sportage hybrid 4dr 4WD	23	32,568	5	30	75	23
Hyundai	Kona 4dr 4WD	21–23	164,727	40	50	53	26
Honda	CR-V 4dr 4WD	23	48,356	9	37	73	27
Hyundai	Kona 4dr	21–23	128,439	35	56	49	27
Honda	HR-V 4dr	23	33,830	8	50	56	28
Honda	CR-V hybrid 4dr 4WD	23	43,904	7	34	86	30
Mitsubishi	Outlander Sport 4dr 4WD	21–23	28,466	8	60	51	31
Mitsubishi	Outlander 4dr 4WD	22–23	72,902	16	45	69	31
Toyota	RAV4 4dr 4WD	21–23	535,226	135	51	68	35

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Toyota	RAV4 hybrid 4dr 4WD	21–23	519,369	116	45	79	36
Kia	Sportage 4dr 4WD	23	83,035	20	50	72	36
Kia	Seltos 4dr	21–23	54,109	54	203	52	106
Kia	Seltos 4dr 4WD	21–23	250,334	300	245	53	129
Midsized SUVs		21–23	8,457,150	2,285	55	95	52
GMC	Acadia 4dr	21–23	88,682	3	8	75	6
GMC	Acadia 4dr 4WD	21–23	126,694	5	8	77	6
Ford	Mustang Mach-E electric 4dr 4WD	21–23	68,494	2	6	138	8
Volkswagen	Tiguan 4dr 4WD	21–23	207,090	16	16	64	10
Mazda	CX-9 4dr 4WD	21–23	108,220	8	15	79	12
Volkswagen	Atlas 4dr	21–23	85,541	7	17	77	13
Subaru	Ascent 4dr 4WD with EyeSight	21–23	269,761	22	17	81	14
Nissan	Murano 4dr 4WD	21–23	61,083	6	20	74	15
Nissan	Pathfinder 4dr 4WD	22–23	87,269	7	17	87	15
Toyota	Highlander hybrid 4dr	21–23	46,133	4	18	84	15
Chevrolet	Traverse 4dr 4WD	21–23	173,880	15	18	87	16
Volkswagen	Atlas Cross Sport 4dr	21–23	44,217	5	23	74	17
Volkswagen	Tiguan 4dr	21–23	148,382	20	28	61	17
Ford	Bronco 2dr convertible 4WD	21–23	42,228	3	15	116	17
Chevrolet	Traverse 4dr	21–23	180,700	21	24	73	17
Ford	Edge 4dr 4WD	21–23	132,504	15	23	81	19
Ford	Explorer 4dr	21–23	146,290	19	26	77	20
Chevrolet	Blazer 4dr 4WD	21–23	114,216	15	26	82	21
Hyundai	Palisade 4dr 4WD	21–23	238,472	29	25	86	22
Jeep	Cherokee 4dr 4WD	21–23	226,101	36	32	68	22
Honda	Passport 4dr	21–23	39,861	6	31	70	22
Kia	Telluride 4dr	21–23	133,098	17	26	85	22
Toyota	4Runner 4dr	21–23	81,075	10	25	88	22
Hyundai	Palisade 4dr	21–23	152,998	20	27	88	23
Volkswagen	ID.4 electric 4dr	21–23	43,820	6	29	86	25
Kia	Telluride 4dr 4WD	21–23	334,718	43	26	98	26
Toyota	4Runner 4dr 4WD	21–23	432,620	62	29	94	28
Toyota	Highlander 4dr	21–23	243,005	43	36	82	30
Ford	Bronco 4dr convertible 4WD	21–23	189,606	25	27	114	31
Volkswagen	Atlas 4dr 4WD	21–23	210,726	42	40	83	33
Volkswagen	Atlas Cross Sport 4dr 4WD	21–23	83,167	17	42	84	35
Nissan	Pathfinder 4dr	22–23	47,613	11	48	77	37
Kia	Sorento 4dr 4WD	21–23	136,687	35	52	76	40
Jeep	Wrangler 2dr convertible 4WD	21–23	99,817	24	49	81	40
Honda	Passport 4dr 4WD	21–23	147,025	38	52	78	41
Kia	Sorento 4dr	21–23	114,654	35	62	69	42
Chevrolet	Blazer 4dr	21–23	139,277	43	63	74	47
Ford	Explorer 4dr 4WD	21–23	389,738	95	50	99	49
Nissan	Murano 4dr	21–23	49,667	23	95	70	66

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Jeep	Wrangler plug-in hybrid 4dr convertible 4WD	21–23	120,600	38	65	111	72
Toyota	Highlander 4dr 4WD	21–23	432,265	229	108	87	94
Jeep	Grand Cherokee L 4dr	21–23	36,002	18	104	92	96
Jeep	Grand Cherokee L 4dr 4WD	21–23	258,706	132	104	99	103
Jeep	Grand Cherokee 4dr 4WD (NEW)	22–23	84,224	43	105	105	110
Jeep	Wrangler 4dr convertible 4WD	21–23	558,628	263	96	116	111
Toyota	Highlander hybrid 4dr 4WD	21–23	186,938	111	121	95	115
Large SUVs		21–23	837,557	742	181	137	248
Ford	Expedition 4dr	21–23	39,089	8	42	120	51
Ford	Expedition 4dr 4WD	21–23	49,957	12	49	137	67
Chevrolet	Tahoe 4dr	21–23	94,489	35	75	122	91
Dodge	Durango 4dr	21–23	46,427	28	125	82	103
GMC	Yukon 4dr	21–23	43,835	16	73	146	107
Chevrolet	Tahoe 4dr 4WD	21–23	268,739	104	79	137	108
GMC	Yukon 4dr 4WD	21–23	147,139	68	95	157	149
Dodge	Durango 4dr 4WD	21–23	111,186	223	409	97	397
Dodge	Durango SRT Hellcat 4dr	21–23	5,573	144	5,282	199	10,515
Very large SUVs		21–23	378,889	115	62	146	90
Ford	Expedition Max 4dr 4WD	21–23	47,812	10	44	142	63
GMC	Yukon XL 1500 4dr 4WD	21–23	89,331	25	57	160	91
Chevrolet	Suburban 1500 4dr	21–23	29,882	11	74	130	96
Chevrolet	Suburban 1500 4dr 4WD	21–23	110,130	39	71	142	101
Jeep	Wagoneer 4dr 4WD	22–23	37,434	15	83	147	123
LUXURY SUVs							
Small luxury SUVs		21–23	781,258	114	30	80	24
Lexus	UX 250 hybrid 4dr 4WD	21–23	35,688	2	10	83	8
Volvo	XC40 4dr 4WD	21–23	74,498	4	10	110	11
Lincoln	Corsair 4dr	21–23	32,109	2	14	81	11
Buick	Encore GX 4dr 4WD	21–23	69,520	7	20	61	12
Buick	Encore GX 4dr	21–23	116,054	14	24	52	13
Mercedes-Benz	GLA class 4dr 4WD	21–23	49,262	4	17	82	14
Mercedes-Benz	GLA class 4dr	21–23	32,346	4	24	95	23
Lincoln	Corsair 4dr 4WD	21–23	45,873	6	26	91	24
Cadillac	XT4 4dr	21–23	36,258	6	32	81	26
Mercedes-Benz	GLB class 4dr	21–23	31,943	5	35	82	29
Mercedes-Benz	GLB class 4dr 4WD	21–23	43,439	8	36	87	31
Audi	Q3 4dr 4WD	21–23	118,395	29	51	83	42
Midsize luxury SUVs		21–23	3,827,576	729	39	129	50
Tesla	Model Y electric 4dr 4WD	21–23	704,206	8	2	112	3
Volvo	XC90 4dr 4WD	21–23	99,190	3	6	104	6
Volvo	XC60 4dr 4WD	21–23	101,773	5	9	99	9
Lincoln	Nautilus 4dr 4WD	21–23	36,765	2	12	109	13
Mercedes-Benz	GLC class 4dr	21–23	67,019	5	15	91	13
Mercedes-Benz	GLC class 4dr 4WD	21–23	109,459	7	13	103	14

Table 4: Whole vehicle theft losses by series, 2021–23 model years

Make	Series	Model years	Exposure (insured vehicle years)	Claims	Relative claim frequency	Relative claim severity	Relative overall losses
Volvo	XC90 plug-in hybrid 4dr 4WD	21–23	40,667	2	9	153	14
Volvo	XC60 4dr	21–23	36,211	3	16	92	14
Cadillac	XT5 4dr 4WD	21–23	55,850	4	15	99	15
Mercedes-Benz	GLE class 4dr	21–23	61,050	4	13	127	17
Acura	MDX 4dr	22–23	27,170	3	20	94	19
Genesis	GV70 4dr 4WD	22–23	50,942	5	19	101	19
Audi	Q5 plug-in hybrid 4dr 4WD	21–23	20,085	2	18	110	19
Land Rover	Defender 110 4dr 4WD	21–23	40,965	2	12	178	22
Audi	Q5 4dr 4WD	21–23	161,437	23	29	92	27
BMW	X3 4dr	21–23	82,478	13	32	88	28
Mercedes-Benz	GLE class 4dr 4WD	21–23	126,664	13	22	137	30
Acura	RDX 4dr	21–23	61,893	12	38	81	31
Acura	MDX 4dr 4WD	22–23	135,316	21	31	114	36
Cadillac	XT6 4dr	21–23	26,991	5	34	104	36
Acura	RDX 4dr 4WD	21–23	147,428	31	43	88	38
Infiniti	QX50 4dr	21–23	31,137	8	51	75	38
BMW	X5 plug-in hybrid 4dr 4WD	21–23	44,784	6	29	150	44
Alfa Romeo	Stelvio 4dr 4WD	21–23	24,304	6	51	93	47
BMW	X3 4dr 4WD	21–23	197,688	45	47	109	50
Infiniti	QX50 4dr 4WD	21–23	33,374	11	67	84	56
Lincoln	Aviator 4dr 4WD	21–23	45,797	9	40	143	57
Jaguar	F-Pace 4dr 4WD	21–23	21,688	6	58	122	71
BMW	X5 4dr	21–23	55,107	16	58	127	74
Audi	SQ5 4dr 4WD	21–23	24,283	8	68	117	80
BMW	X4 4dr 4WD	21–23	38,620	13	69	119	82
Genesis	GV80 4dr 4WD	21–23	59,424	21	72	128	93
Porsche	Macan 4dr 4WD	21–23	80,917	30	77	137	105
Land Rover	Range Rover Velar 4dr 4WD	21–23	28,396	15	111	123	135
BMW	X5 4dr 4WD	21–23	159,258	106	136	144	196
Mercedes-Benz	GLE class coupe 4dr 4WD	21–23	39,337	29	153	197	301
BMW	X6 4dr 4WD	21–23	34,179	48	285	160	457
Large luxury SUVs		21–23	776,380	635	167	220	367
Mercedes-Benz	GLS class 4dr 4WD	21–23	58,286	8	27	191	52
Lexus	GX 460 4dr 4WD	21–23	127,527	29	46	119	55
Audi	Q7 4dr 4WD	21–23	87,296	29	69	121	83
Porsche	Cayenne 4dr 4WD	21–23	40,558	14	71	177	126
Audi	Q8 4dr 4WD	21–23	34,692	15	87	150	131
BMW	X7 4dr 4WD	21–23	93,971	128	278	173	480
Cadillac	Escalade 4dr 4WD	21–23	65,537	82	256	218	558
Very large luxury SUVs		21–23	75,114	61	166	282	469
Cadillac	Escalade ESV 4dr 4WD	21–23	36,320	39	218	234	509
All vans		21–23	41,282	17	86	98	85
VANS							
Midsize vans		21–23	13,304	5	—	—	—
Very large vans		21–23	27,978	13	93	111	103

References

Highway Loss Data Institute. (2008). *Make and series results and modeling* (Insurance Special Report A-77).

Highway Loss Data Institute. (2009). *Collision losses after all-variable standardization, 2007–09 models* (Insurance Special Report A-82).

Highway Loss Data Institute. (2010). *Technical appendix*.

Highway Loss Data Institute. (2018). *HLDI loss data computation methods*.

► Appendix: methodology

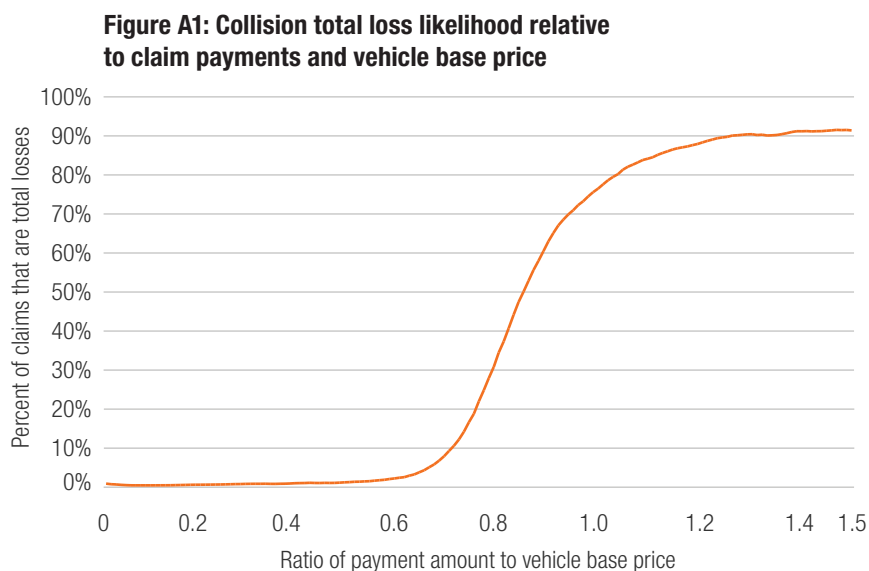
Comprehensive coverage pays for financial losses associated with any of the three types of theft claims: theft of contents from a vehicle, theft of vehicle parts, and theft of the entire vehicle. Presumably, the cost of a claim for theft of vehicle contents and/or personal valuables in a vehicle should be less than the value of the vehicle, while the theft of an entire vehicle should result in a claim that is near the residual value of the vehicle. Therefore, any theft claim that is near the residual value of the vehicle is likely to be a whole vehicle theft.

Under collision coverage, a vehicle is declared a total loss when crash damage is so severe that the cost to repair the vehicle is higher than the vehicle's residual value. Insurers then take possession of the damaged vehicle and pay the insured the residual value of the vehicle. Data on collision total loss claims are provided to HLDI. Under comprehensive coverage, when an insured vehicle is stolen, insurers pay the policyholder the residual value of the vehicle.

Therefore, it can be assumed that total loss payments under collision coverage are approximately equal to payments for whole vehicle theft under comprehensive coverage.

Collision claims data and information on vehicle base price were used to estimate vehicle residual values at the calendar year, model year, and make and series level. These estimates were then used as a whole vehicle theft threshold. If the payment associated with a theft claim was greater than the threshold value, then it was designated a whole vehicle theft.

Information on all collision claims for 2021–23 model year vehicles during calendar years 2020–23 was obtained, and each claim was categorized as either a total loss or not a total loss. Information on vehicle base price for each vehicle was obtained, and a ratio of collision payment to vehicle base price was calculated. The relationship between the payment ratio and the likelihood that a claim resulted in a total loss was studied by comparing the percentage of total losses across different values of the payment ratio. For example, among claims with a payment ratio ranging from 0.38 to 0.39, only about 1% resulted in a total loss. In contrast, among claims with a payment ratio ranging from 0.83 to 0.84, as much as 50% resulted in a total loss. A payment ratio of 0.91 was selected as a preliminary threshold amount. At this ratio, two-thirds of collision claims resulted in a total loss. This ratio was selected based on the shape of the distribution curve to balance the proportions of false negatives and false positives. This curve is illustrated in **Figure A1**.



To further verify the validity of this threshold for theft claims, individual claim sizes for three popular vehicles were examined: the Chevrolet Silverado 1500 crew cab 4WD, Subaru Forester four-door 4WD with EyeSight, and Toyota Corolla. In general, claim size distributions are different for collision and theft claims. The amounts for collision claims are distributed more or less equally between claims of less than a thousand dollars and claims equaling the full price of the vehicle. For theft, losses tend to be minor (when some parts are stolen) or major (when the whole vehicle is stolen); claims for amounts in the middle are infrequent. When the theft claim size distributions for those three vehicles were examined and base prices were taken into account, the threshold value of 0.91 fit into that “in-between” range. The theft claim size distributions for these three vehicles are illustrated in **Figures A2–A4**.

Figure A2: Chevrolet Silverado 1500 crew cab 4WD theft claim size distribution

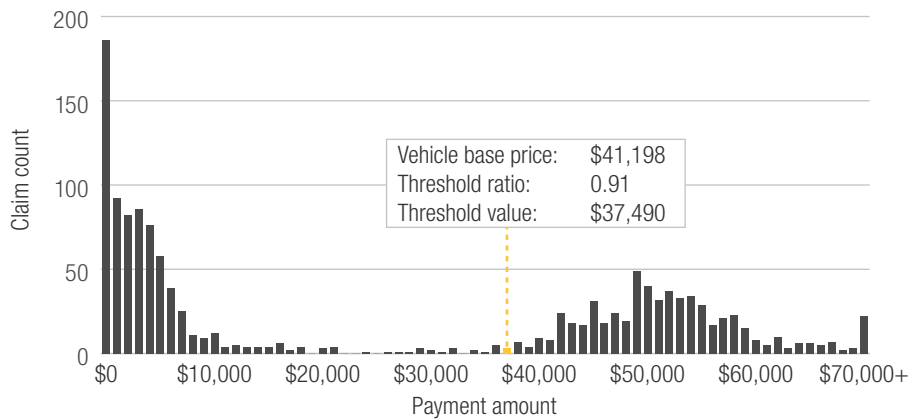


Figure A3: Subaru Forester four-door 4WD with EyeSight theft claim size distribution

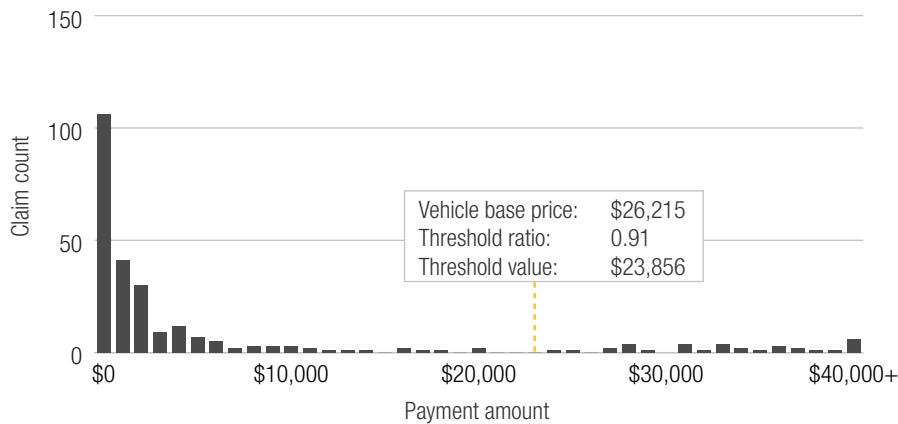
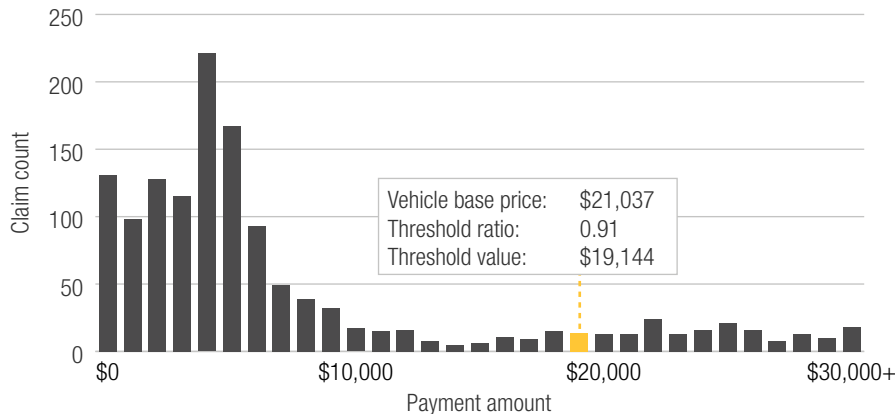


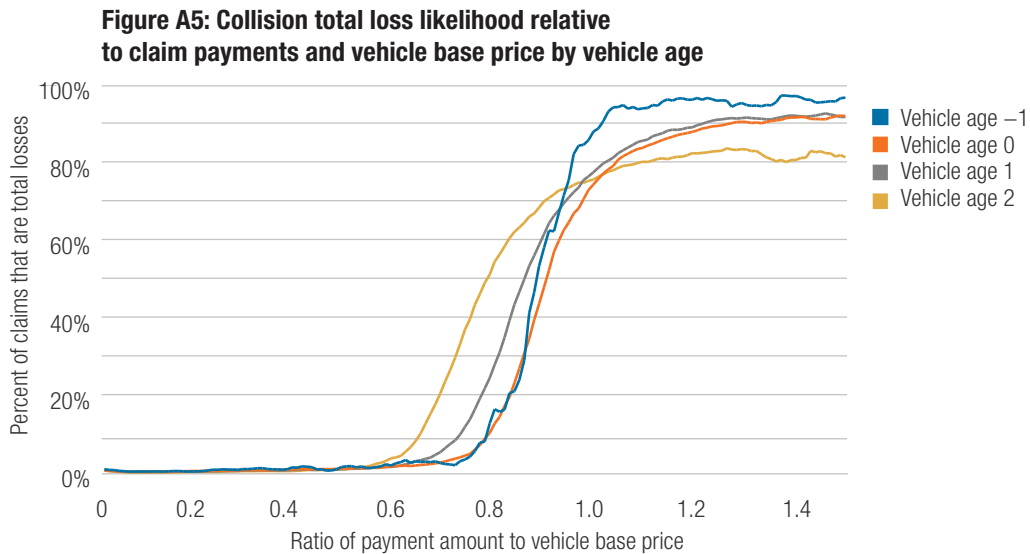
Figure A4: Toyota Corolla theft claim size distribution



Vehicles depreciate significantly as they age. Consequently, individual thresholds were calculated for each of the possible vehicle ages in the analysis. The ages ranged from -1 to 2. A negative vehicle age occurs when the model year is greater than the calendar year. Vehicles from a model year can be and often are sold in the calendar year preceding the model year. These thresholds were selected because two-thirds of collision claims associated with the thresholds resulted in a total loss.

Table A1: Whole vehicle theft thresholds by vehicle age	
Vehicle age	Threshold
-1	0.92
0	0.95
1	0.92
2	0.87

Figure A5 illustrates the collision total loss likelihood relative to claim payment amounts and vehicle base price by vehicle age. As the vehicle age increases, the total loss threshold decreases.



After these age-level values were selected, theft claims were evaluated to determine if they were likely to be whole vehicle theft claims. For each claim, the payment amount was divided by the vehicle base price. If the resulting ratio was greater than the threshold value appropriate for the age of the vehicle, then the claim was considered a whole vehicle theft. All claims considered to be whole vehicle theft were combined with exposure data and run through HLDI’s all-variable-standardization procedure. The end result was that claim frequencies decreased and claim severities increased for the vehicles with the highest theft losses. For example, the 2021–23 Hyundai Elantra has an overall theft claim frequency of 2.3, compared with a whole vehicle theft claim frequency of 0.4. Claim severity for this vehicle was \$8,420 for any type of theft and \$23,948 for whole vehicle theft.



4121 Wilson Boulevard, 6th floor
Arlington, VA 22203
+1 703 247 1500
iihs-hldi.org

COPYRIGHTED DOCUMENT, DISTRIBUTION RESTRICTED

The Highway Loss Data Institute is a nonprofit public service organization that gathers, processes, and publishes insurance data on the human and economic losses associated with owning and operating motor vehicles.