



# Economic Stress Index™





# About LegalShield



**#1 Provider** of subscription-based legal plans to households



**1.8 million+ memberships** paying monthly via credit card/ debit card/payroll deduction



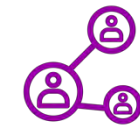
**49 year** history and counting



**47,000** small business accounts



**6,900 broker & agency clients** served by our dedicated B2B division



**39 law firms in 50 states, Canada and the United Kingdom** with a total of 900 lawyers, and a referral network of 4,600 lawyers, with average of 22 years experience



# About the LegalShield Economic Stress Index

- ✓ The LegalShield Economic Stress Index is a suite of leading indicators of the economic and financial status of U.S. households and small businesses.
- ✓ The LegalShield Economic Stress Index is comprised of five sub-indices that are constructed from LegalShield's proprietary data, which reflect the demand for various legal services over the past 15+ years. Each time a LegalShield provider law firm receives a request from a LegalShield customer, the request is logged as an "intake" in one of roughly 70 unique areas of law (e.g., real estate) depending on the nature of the request.
- ✓ Each sub-index reflects the number of intakes in an area of law as a share of total intakes across all areas of law in a given quarter. In some instances, individual indices across multiple areas of law (e.g., bankruptcy, foreclosure, consumer/finance) are combined to produce a composite index (e.g., consumer financial stress).
- ✓ The sub-indices that comprise the LegalShield Economic Stress Index were selected because they tend to lead an existing economic indicator that sheds light on the health of the U.S. economy (i.e., the target economic indicator). In this way, the LegalShield Economic Stress Index provides actionable intelligence about the direction of the U.S. economy in the near term.

# Advantages of the LegalShield Economic Stress Index



## **UNIQUE**

The LegalShield Economic Stress Index is based on inquiries into specific legal services each month. To the best of our knowledge, there is no comparable data on the market.



## **PROPRIETARY**

The LegalShield Economic Stress index is based on data collected through LegalShield's provider law firms in all 50 states, thereby offering information that is not accessible to the general public.



## **HIGH-FREQUENCY**

The LegalShield Economic Stress Index is based on data collected on a near real-time basis, and can be refreshed on a weekly, monthly, or quarterly basis depending on the user's needs.



## **ROBUST**

The LegalShield Economic Stress Index is based on intakes for more than 1.8 million memberships (including individuals and small businesses), providing a window into the experiences of families and businesses across the country at any given point in time.

# Interpreting Each Component of the LegalShield Economic Stress Index

## CONSUMER STRESS INDEX

Consumer spending accounts for more than two-thirds of U.S. economic activity. The flagship Consumer Stress Index tends to lead the Conference Board's Consumer Confidence Index by one to three months. The Consumer Stress Index also provides a useful "hard" data check on the Consumer Confidence Index and similar measures of consumer confidence that are based on "soft" survey data, as these measures are not always consistent with underlying economic conditions.

## BANKRUPTCY INDEX

Bankruptcy data provide an important insight into the overall financial health of consumers and businesses. As witnessed during the Great Recession of 2008-09, an uptick in bankruptcies can foreshadow significant turmoil within the economy. The Bankruptcy Index tends to lead the trajectory of total bankruptcies by roughly one month, providing an early warning signal of an economic downturn.

## FORECLOSURE INDEX

A rise in foreclosures often signals a worsening of household finances, as households typically delay payments on other debt obligations in order to pay their mortgages on time. The Foreclosure Index closely tracks foreclosures as reported each quarter by the Mortgage Bankers Association.

## HOUSING CONSTRUCTION INDEX

The housing market, broadly defined, accounts for up to one-seventh of U.S. economic activity, and the amount of new residential construction (as measured by housing starts) can provide insights into consumers' confidence about their jobs and future income. The Housing Activity Index tends to lead U.S. Census data on housing starts (a key economic indicator) by 1-2 months — providing timely intelligence about near-term housing market health.

## HOUSING SALES INDEX

The housing market accounts for a significant share of U.S. economic activity, and the pace of existing home sales can provide insights into consumers' confidence about their jobs and future income. The Housing Sales Index tends to lead existing home sales as published by the National Association of Realtors and offers an early look at emerging trends in the housing market.



# Consumer Stress Index

The LegalShield Consumer Stress was roughly unchanged and remains near a historic low. While consumer financial health generally remains solid thanks to pandemic-era savings and a strong labor market, high inflation continues to be the primary headwind for household finances.

The LegalShield Consumer Stress Index increased (worsened) 0.3 point to 57.2 in March. Meanwhile, the Conference Board's Consumer Confidence Index rose 1.5 points in March to 107.2.

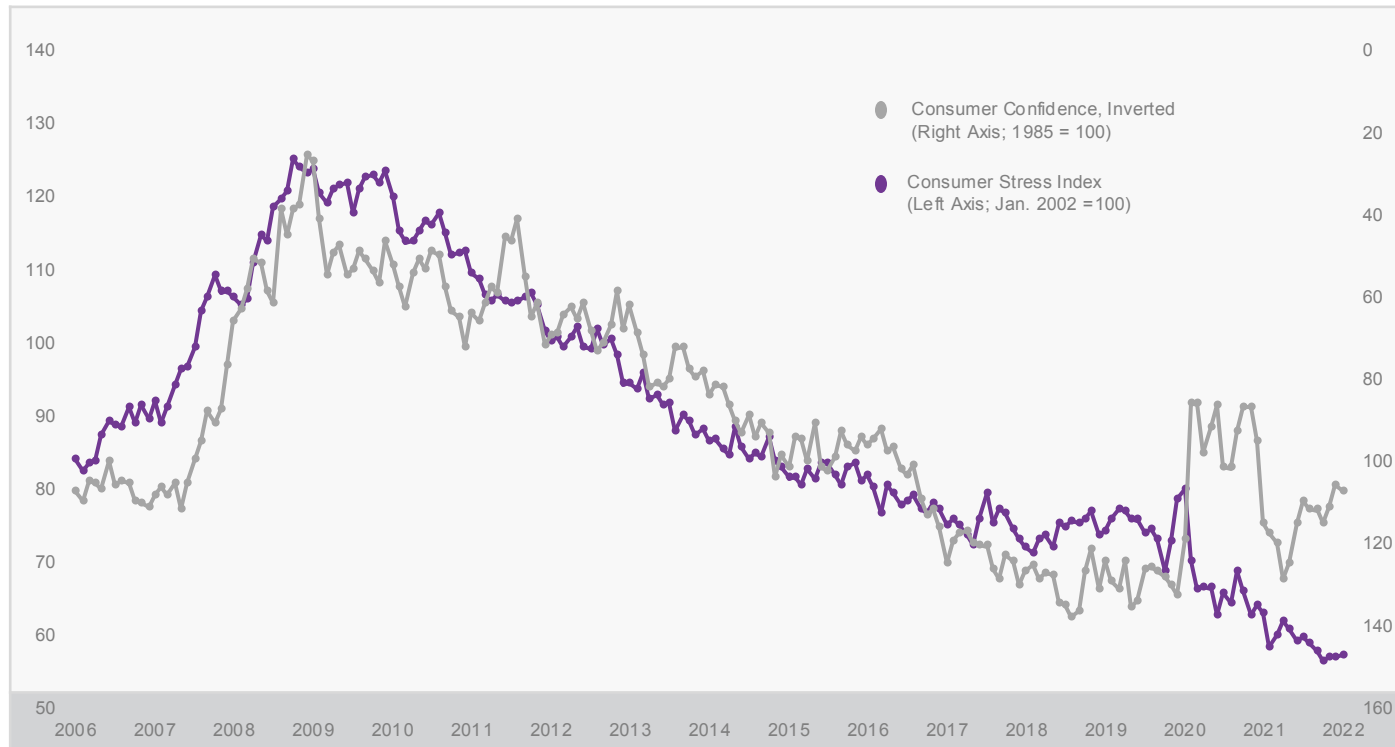
Consumer stress has been low thanks to savings accumulated during the pandemic and a strong labor market. The labor market has shown promising growth in recent months, adding 431,000 jobs in March along with significant upward revisions to previously released figures. The unemployment rate also fell, more Americans joined the labor market, and wages grew at a solid nominal rate. The number of people who said they were unable to work because their employer lost business or closed fell by 40% M/M in March, an indication of strong consumer demand.

Despite plentiful jobs and rising nominal incomes, consumers' purchasing power has been eroded by soaring inflation, which accelerated to 8.5% (Y/Y) in March. Despite rising nominal wages, inflation-adjusted disposable income has fallen for seven consecutive months and is beginning to take a toll on spending; real personal consumption expenditures fell 0.4% in February. Gallup reports that in March, the share of survey respondents that reported inflation to be the most important problem facing the U.S. rose to the highest level since 1985. Unsurprisingly, the inflation surge has led to declining consumer sentiment across all income groups. While lower-income consumers have been hit hard by rapidly rising prices for groceries, gasoline, and other necessities, higher-income households have contended with slumping financial markets and volatile asset prices. Inflation and substantial economic and geopolitical uncertainty have shown few signs of easing in the near term, a significant concern that could signal rising financial stress later this year.

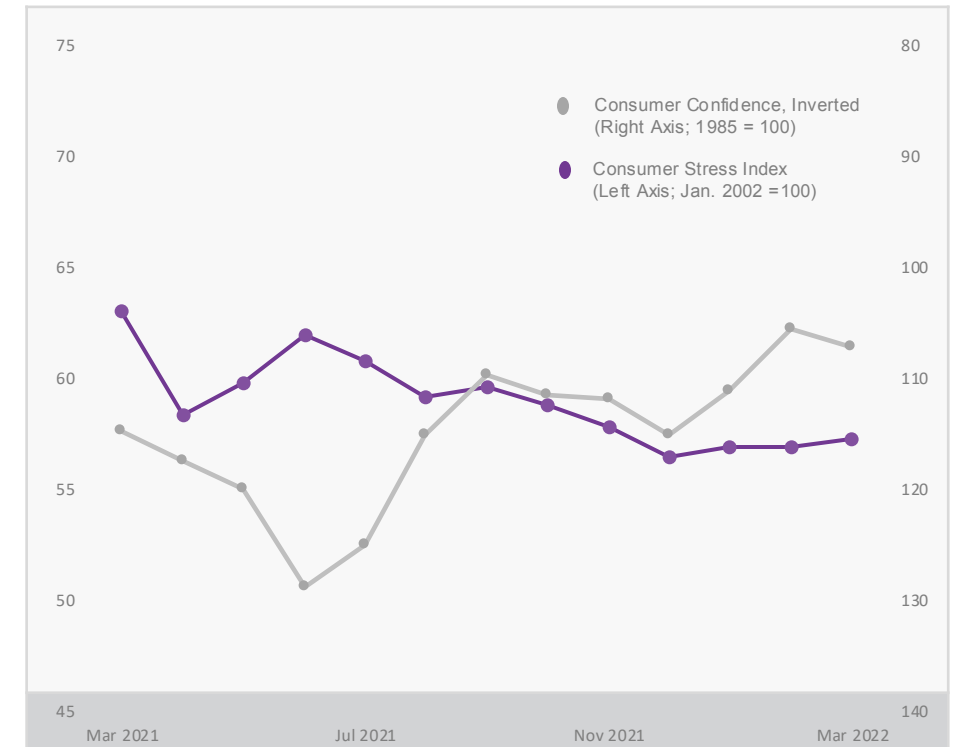
While high inflation continues to chip away the solid foundation that consumers have built up over the last two years, financial stress is not expected to rise sharply in the next 1 – 3 months, an outlook supported by LegalShield data.

# Consumer Stress Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Bankruptcy Index

The LegalShield Bankruptcy Index ticked up in March, though it remains well below historical levels. The combination of pandemic-era savings and a strong labor market should keep bankruptcies low for the foreseeable future.

The LegalShield Bankruptcy Index increased (worsened) 0.9 point to 19.4 in March, though the index remains near an all-time low. Meanwhile, total seasonally adjusted bankruptcy filings fell 5.3% to 28,850 in March and were down 21% compared to a year ago.

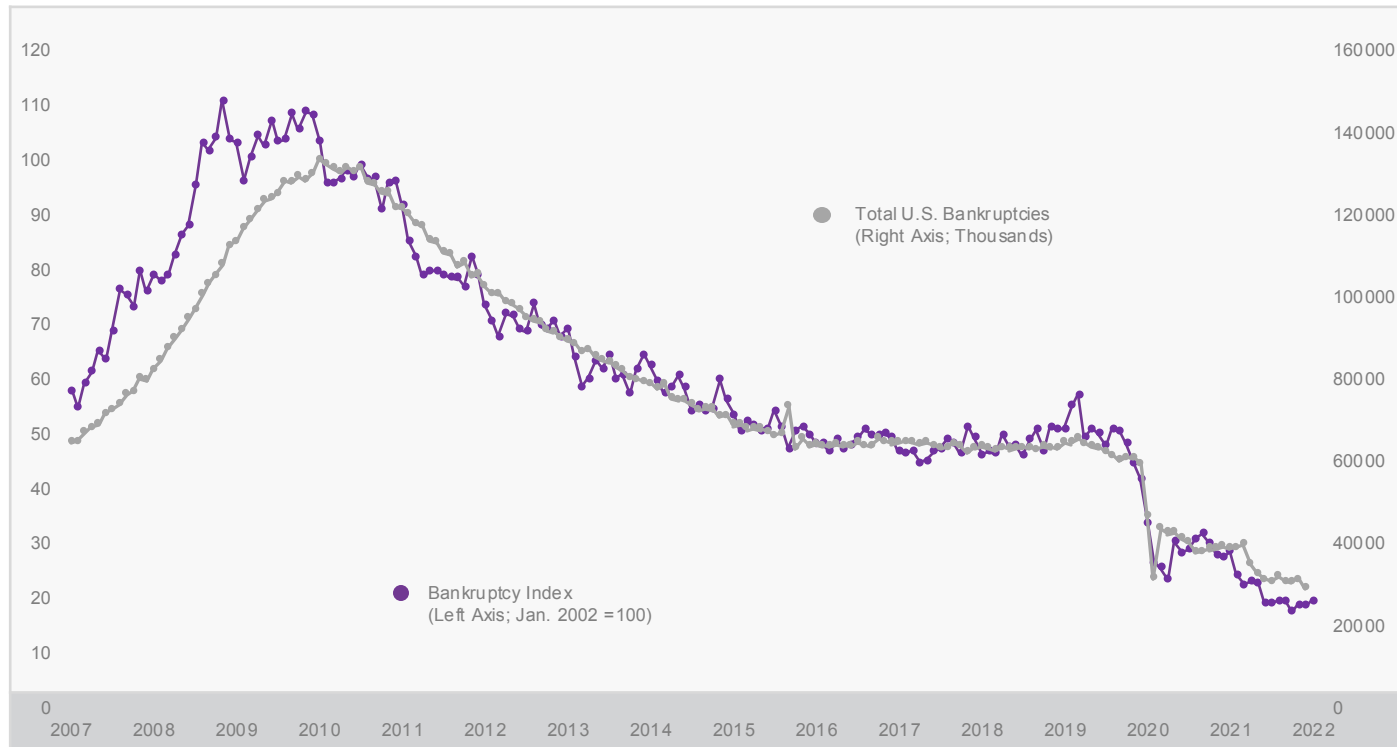
High savings and a favorable labor market have kept bankruptcies muted. Per the Federal Reserve Board of Governors, [household net worth](#) grew 8.2% in Q4 due to increases in corporate equity holdings and appreciation in housing prices. However, these gains are likely concentrated among higher-income consumers, as there are emerging signs that financial stress may be slowly building among the most cash-strapped households. Per the New York Fed's Survey of Consumer Expectations, income growth rate expectations have fallen for households earning less than \$50k / year and are now at their lowest since last summer. Credit card delinquency and charge off rates are also edging up as inflation worsens, though these movements could simply reflect a normalization of credit trends following extraordinary stimulus and credit conditions, which led to significant deleveraging among credit card users. Indeed, though delinquency rates are trending up, they remain well below pre-pandemic levels.

Nevertheless, increased cost of living due to skyrocketing prices of necessities like gasoline, food, and rent are likely to increase financial stress over the next year, particularly among lower-income consumers. For example, [analysts](#) estimate that every \$1/gallon increase in gas prices adds about \$1,200 to annual household expenses. Consumers are [reportedly](#) managing rising costs by buying staple goods in smaller quantities, switching to cheaper brands, and increasing credit card debt. According to a survey by [LendingTree](#), one-third of Americans added to their credit card debt during the pandemic, and half of these cardholders cited inflation as the main reason. Even the cost of credit card debt is set to become more expensive this year following anticipated interest rate increases by the Federal Reserve, as most credit cards have variable rates that are pegged to the prime rate.

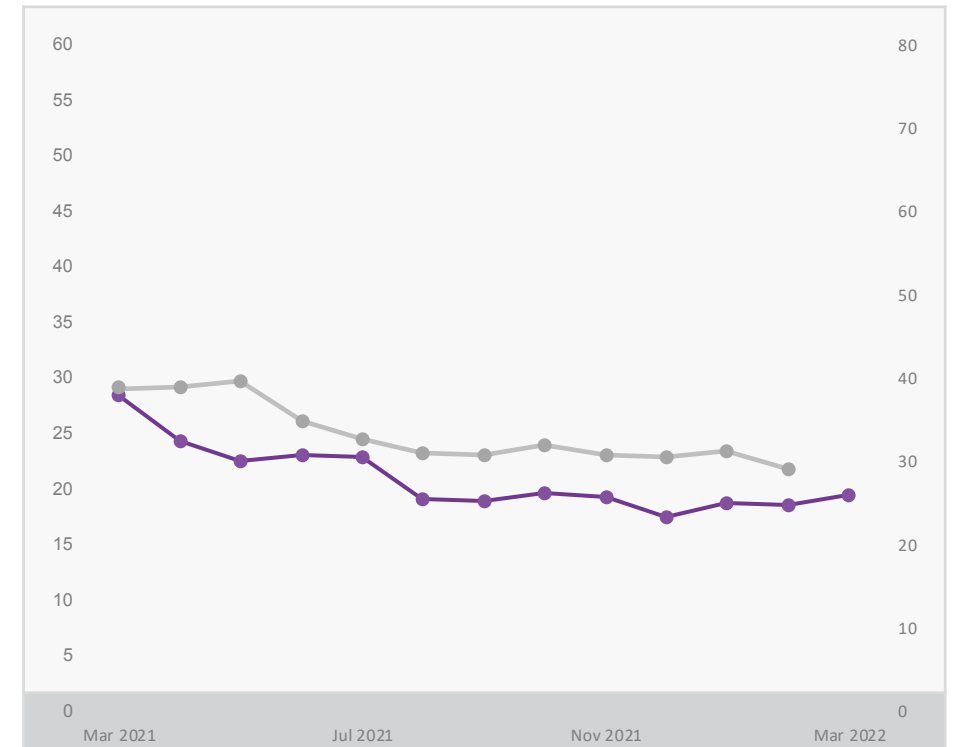
Though there remain significant headwinds for consumers' financial health, bankruptcies are expected to remain low in the coming months, an outlook supported by LegalShield data.

# Bankruptcy Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Foreclosure Index

The LegalShield Foreclosure Index rose in March to the highest level in a year. While foreclosure activity has been gradually normalizing to pre-pandemic trends after the expiration of government support, it remains well-below historic levels.

The LegalShield Foreclosure Index rose (worsened) 1.0 point to 38.5 in March, the third straight monthly increase. Meanwhile, ATTOM reports that 25,833 properties had foreclosure filings in February, up 11% M/M and 129% higher than a year ago.

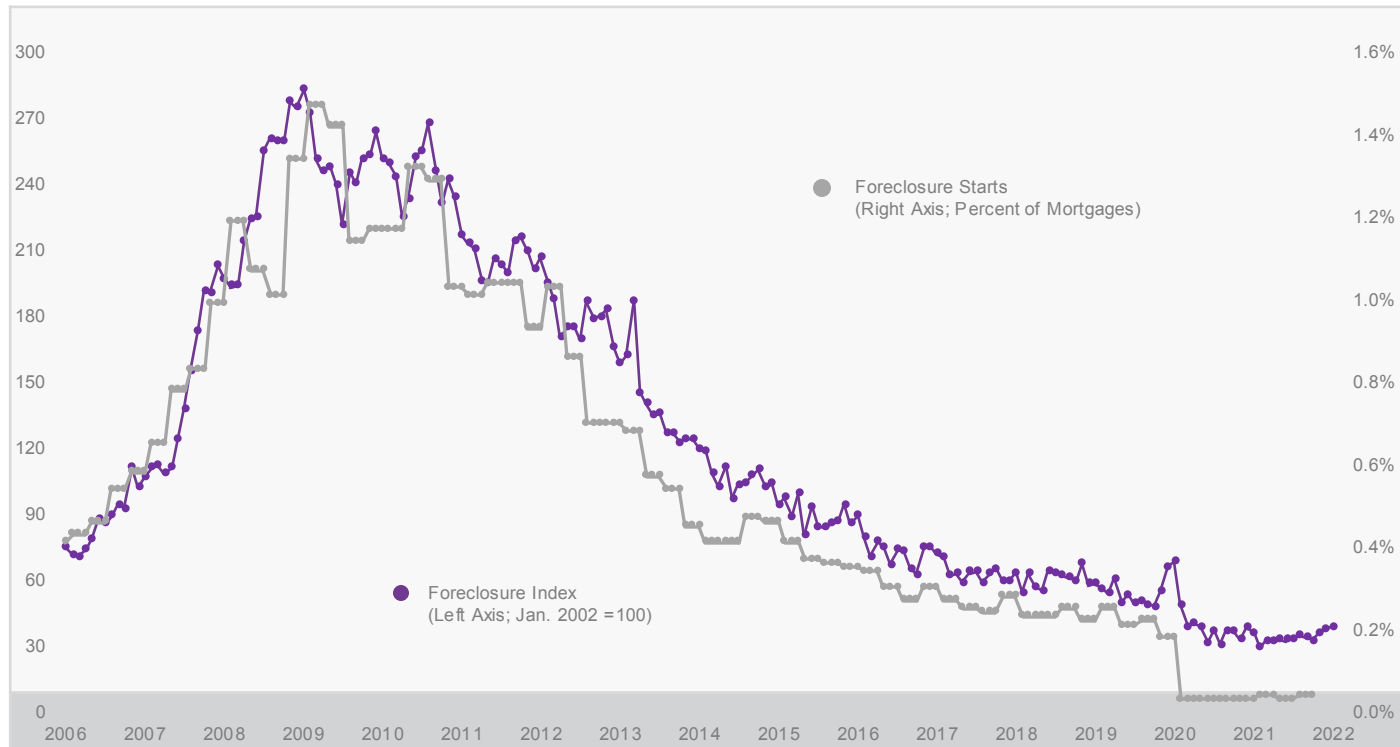
Foreclosure and mortgage delinquency levels fell to historic lows during the pandemic due to the foreclosure moratorium, forbearance plans, and other mortgage repayment support offered by both the federal government and private lenders. For example, [CoreLogic](#) reports that at the end of 2021, the share of homes that had late payments or were in foreclosure dropped to the lowest level since the series began in 1999. While most borrowers who entered forbearance during the pandemic have since caught up with their payments, foreclosure activity has risen in recent months. This increase could be simply the result of a normalization of foreclosure activity rather than an ominous early indication of a looming foreclosure wave. Indeed, the [Philadelphia Fed](#) estimates that of mortgages that are seriously delinquent and never entered forbearance or loss mitigation, 60% originated before 2009 — suggesting that many seriously delinquent borrowers were struggling well before the pandemic.

Still, even struggling borrowers are benefitting from a robust housing market that has driven the value of homes steadily higher. Per [CoreLogic](#), U.S. mortgage borrowers saw their equity increase by nearly 30% in Q4 compared to a year prior, translating to an average gain of about \$55K per borrower.

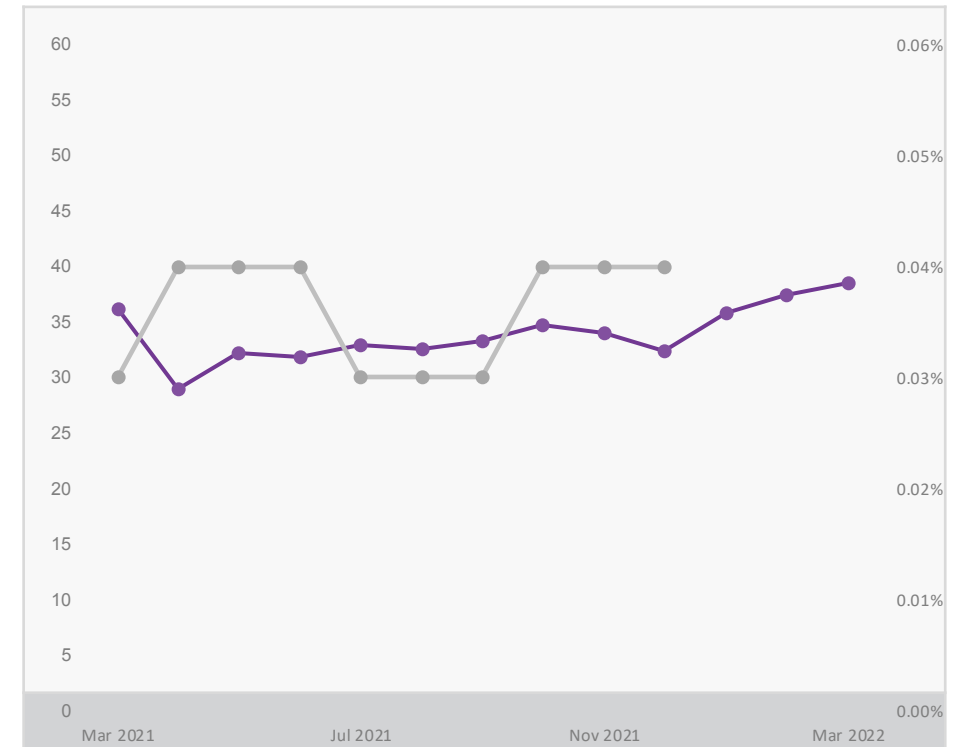
The combination of rising home prices and a strong labor market reduce the likelihood of a sharp increase in foreclosure activity in the near term. Instead, LegalShield data suggest that a slow and steady rise in foreclosure starts is a more likely outcome.

# Foreclosure Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Housing Construction Index

The LegalShield Housing Construction Index rose in March after declining for three months. High demand and a significant backlog of homes waiting to be built have sustained construction activity, although supply chain disruptions and rising construction costs are tempering homebuilder optimism.

The LegalShield Housing Construction Index increased 4.2 points to 136.5 in March. Meanwhile, housing starts rose 6.8% in February and were 22% above year-ago levels, marking the fastest growth since 2006. Housing construction rebounded strongly following weather- and Omicron-related impediments in January.

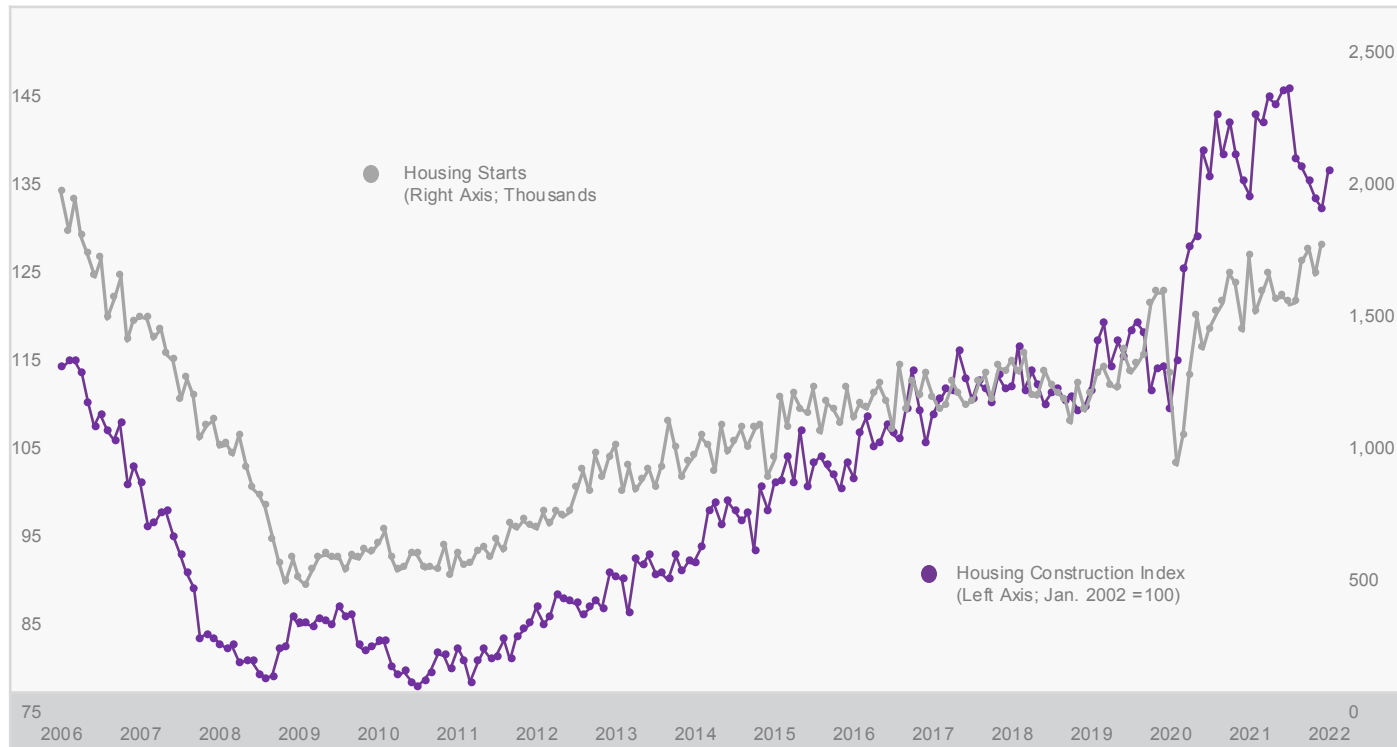
Housing construction has soared since the beginning of the pandemic given strong housing demand and low inventories, though it has been hampered recently by supply chain constraints, high materials costs, and skilled worker shortages. Homebuilding activity is shifting toward rural markets due to high prices in urban and suburban areas, increased demand for less-populated areas, and a shortage of buildable lots: according to the [National Association of Home Builders](#), one-in-six new homes is being constructed in a rural area as of Q4 2021, a greater share than the rural U.S. population. Strong construction activity will likely continue: the number of homes authorized for construction but not yet started remained near a five-decade high as of February.

Despite the persistent supply-demand imbalance that is fueling new home construction, homebuilder confidence has been tempered by increased costs and supply chain delays. The [NAHB/Wells Fargo Housing Market Index](#) dipped for the third straight month in March to the lowest level in six months. [Construction costs](#) have increased 20% from a year ago, and supply chain issues exacerbated by geopolitical tensions have stalled many home completions. Indeed, although there were more than 400,000 new single-family [homes for sale](#) in February, less than 10% of those homes were completed and ready for occupancy.

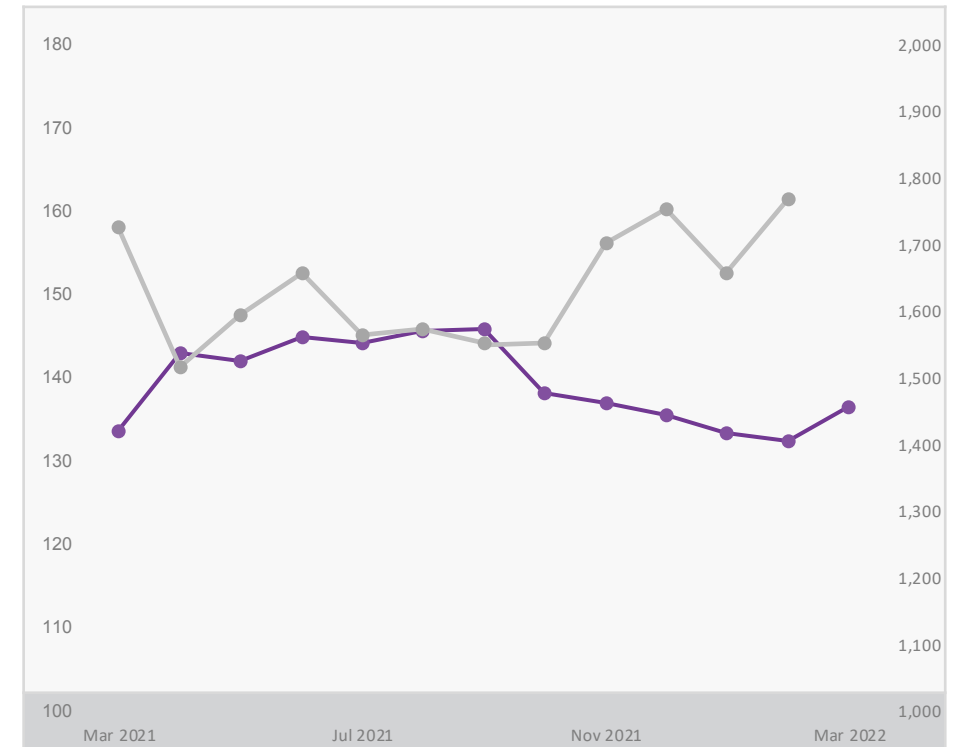
All things considered, housing construction is expected to remain strong in Q2.

# Housing Construction Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Housing Sales Index

The LegalShield Housing Sales Index increased in March to the highest level in six months. Financially strong homebuyers and generational demand from millennials have kept home sales strong despite affordability constraints.

The LegalShield Housing Sales Index rose sharply by 5.3 points to 115.8 in March. Meanwhile, existing home sales fell 7.2% in February and were down 2.4% compared to year-ago levels.

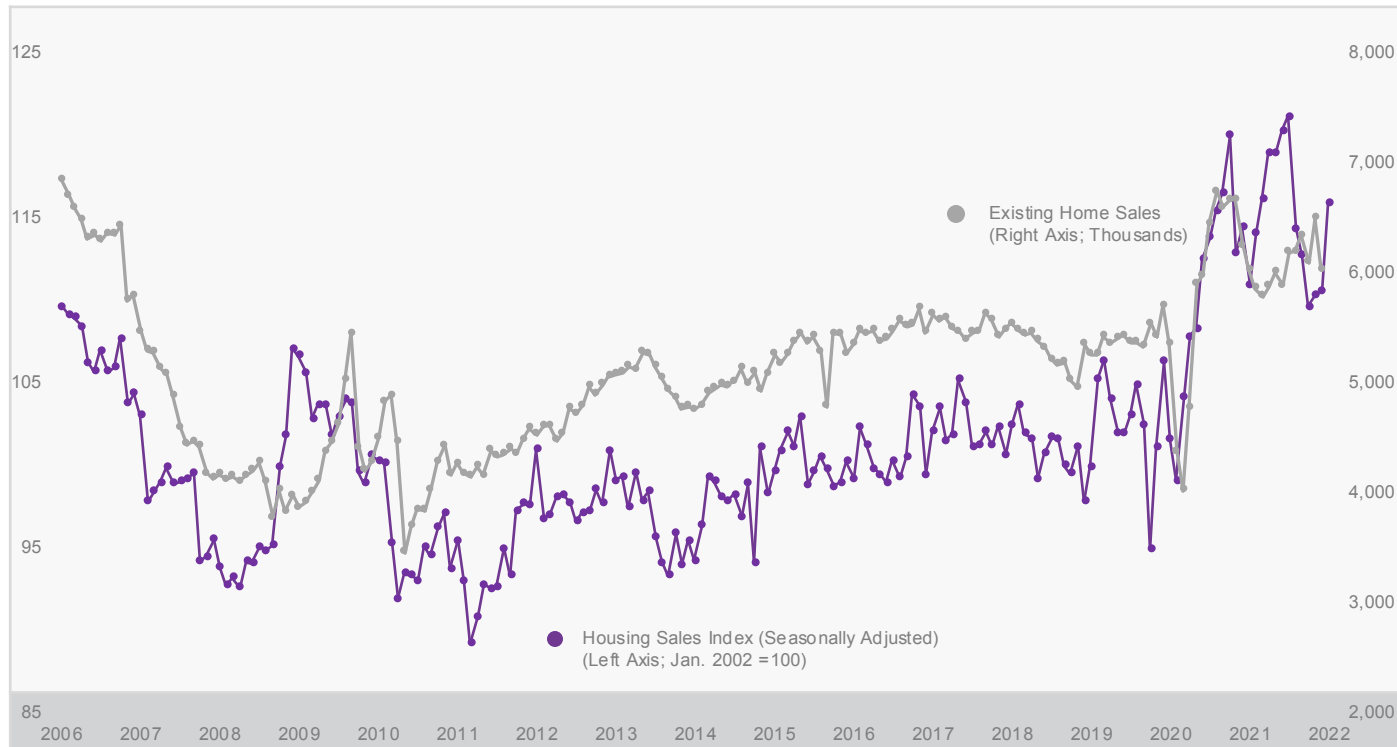
Housing demand has remained strong due to financially well-positioned buyers and strong demographic trends. High demand for homes contrasted with limited inventories have led to fierce competition among buyers. According to [Redfin](#), in the four weeks ending mid-March, active listings fell to an all-time low and a record share of homes (45%) that went under contract had accepted an offer within a week of listing. Strong housing demand has been sustained by cash-flush buyers, [investors](#), and Millennials reaching prime home-buying age. Per the [National Association of Realtors](#), 43% of all home buyers in 2021 were Millennials, up six percentage points from a year ago. Having become the largest living adult generation, analysts expect Millennials to prop up housing demand for years to come.

At the same time, high home prices and rising mortgage rates have led to significant affordability constraints. According to the [Atlanta Fed](#), at the end of 2021 housing affordability fell to the lowest level since 2008, with households earning an average income needing to spend nearly a third of their paychecks on mortgage payments for a median-priced home. Meanwhile, over the last three months, mortgage rates have risen at the fastest pace since 1994 to the highest level in three years. High prices are negatively affecting homebuyer sentiment: a near record-low share of respondents to a recent [Fannie Mae](#) survey believe it is a good time to buy a home. However, although affordability and rising borrowing costs are significant headwinds in the longer term, they may be having the opposite effect in the near term: the prospect of higher mortgage rates may be pulling demand forward for buyers who want to lock in a more favorable rate before things get even more expensive. Indeed, Redfin data show that home prices also logged their largest 4-week increase on record in the four-week period ending March 13, and pending home sales were up 3% Y/Y and 33% from just before the pandemic.

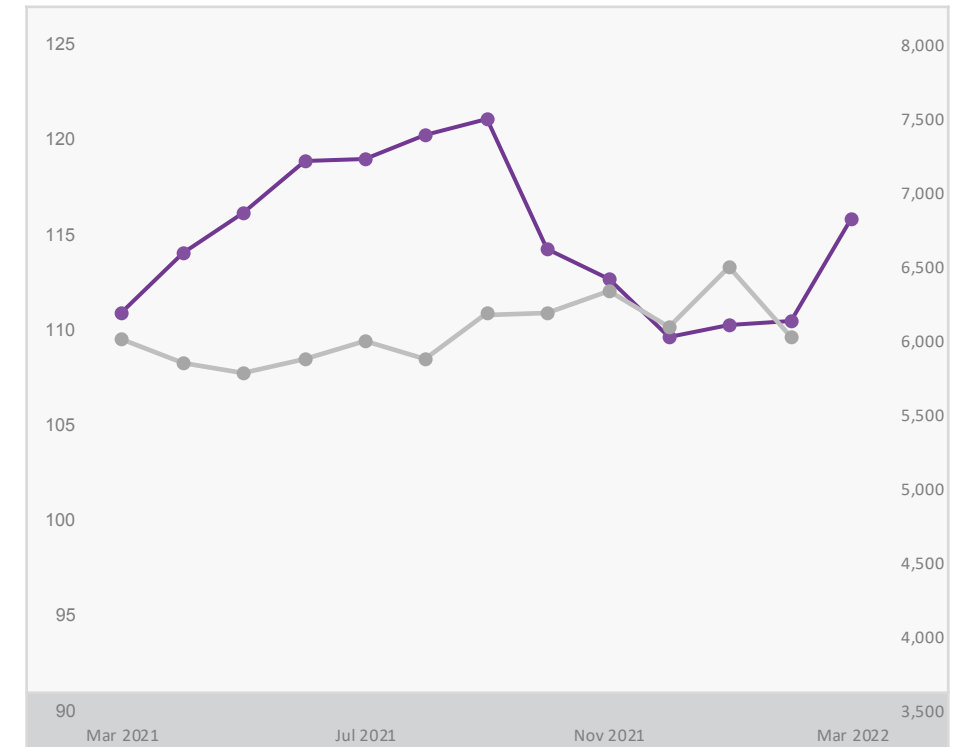
In all, LegalShield data suggest that home sales should remain healthy in the near term.

# Housing Sales Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months



# Technical Appendix



# Key Findings

Three individual AOLs demonstrated strong correlation and leading properties against five target macroeconomic indicators.

Summary Of Results							
LEGALSHIELD AREA OF LAW	TARGET MACRO INDICATOR(S)	CORRELATION (LEVEL)	CORRELATION (Y/Y)	CORRELATION (Q/Q)	TRACKS HISTORICAL TREND?	ESTIMATED LEAD	ROBUST OVER TIME?
Bankruptcy	Bankruptcies	0.75	0.74	0.22	✓	≈ 1 mo.	✓+
Foreclosure	Foreclosures	0.96	0.88	0.47	✓	Coincident*	✓+
Real Estate	Existing Home Sales	0.87	0.65	0.46	✓	≈ 0-1 mo.*	✓

\*These indices have a timing advantage over their target indicators due to the release schedule of the target series.

# Composite Indices

We developed two composite indexes that are strongly correlated with and tend to lead economic indicators of interest.



LegalShield “Consumer Stress” Index

- ✓ **Component AOLs:** (1) Bankruptcy; (2) Consumer/Finance; (3) Foreclosure
- ✓ **Target Indicator:** Consumer Confidence
- ✓ **Performance:** -0.85 Correlation; 1-3 Month Lead



LegalShield “Housing Construction” Index

- ✓ **Component AOLs:** (1) Real Estate; (2) Foreclosure
- ✓ **Target Indicator:** Housing Starts
- ✓ **Performance:** 0.91 Correlation; 0-2 Month Lead\*

\*In addition to its statistical lead time, the Index also has a timing advantage over housing starts of roughly one week due to release schedules.

# Methodology:

## Individual Index Development



# Methodology

A six-step process was used to convert LegalShield intake data into potential indices.

1

**CONSTRUCT DATASET:**

Conduct preliminary data cleaning, processing, and formatting.

2

**DETERMINE SCOPE OF ANALYSIS:**

Examine differences across plan types and subscriber samples to determine the optimal “subscriber universe” for index development.

3

**DEFINE INTAKE METRIC:**

Test competing approaches for normalizing intake data.

4

**FILTER AOLS:**

Evaluate and scope the original list of 65 areas of law (AOLs) to identify the best candidates for index development.

5

**TEST:**

Run the scoped AOLs through a series of transformations and statistical tests to identify quantitative relationships with key macroeconomic indicators.

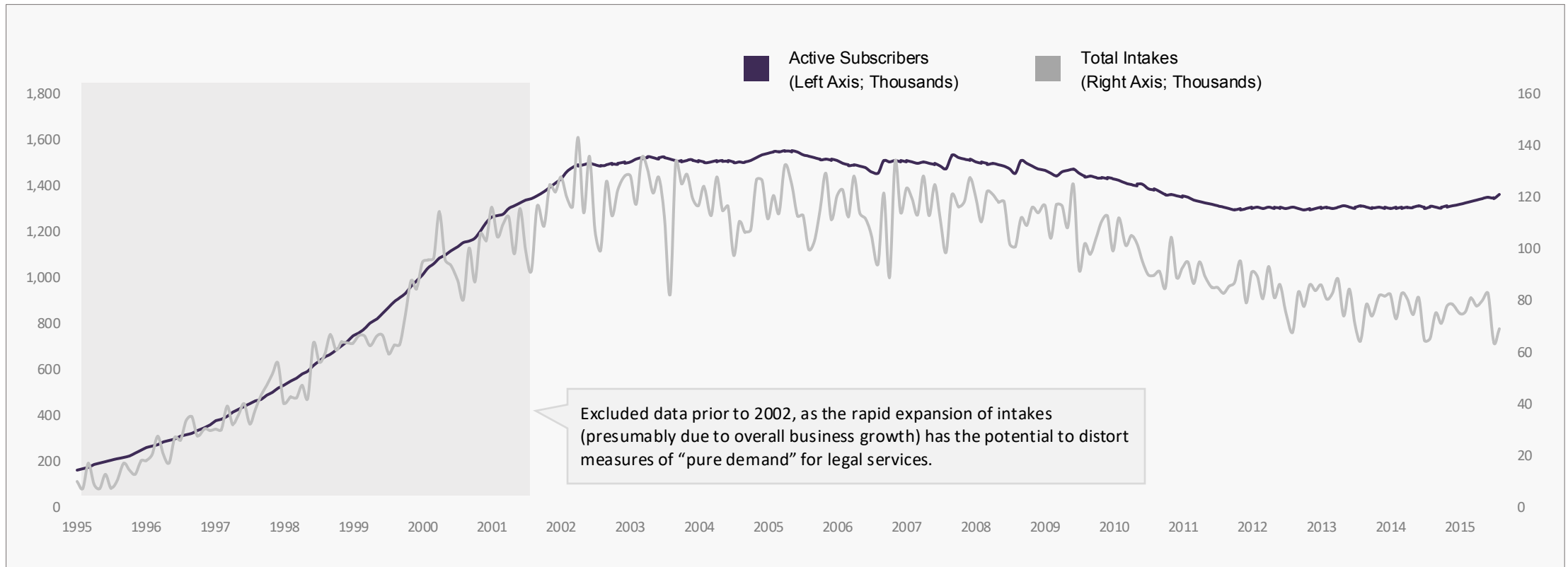
6

**DEVELOP INDEXES:**

Combine specific AOLs into composite indexes and test relationships with key macroeconomic indicators.

# Data Construction & Cleaning

Monthly subscriber and intake data was trimmed to improve the stability of the dataset over time.





# Filter AOLs

Out of 65 AOLs in the original intake data, a three-step filtering process identified 27 as suitable candidates for index development.

## Scoping Intake Data

1

### ORIGINAL DATASET:

Historical intake data from LegalShield included 65 AOLs.



2

### CONSOLIDATE AOLS:

Consolidating “like” AOLs reduced the number from 65 to 49.



3

### CRITERIA 1: HISTORICAL DATA

18 AOLs lacked sufficient historical data.



4

### CRITERIA 2: NARROW SCOPE

4 AOLs were defined too broadly to support a specific index narrative, leaving 27 “qualifying” AOLs.



# Filter AOL

Detailed Inclusion Filter Results (1/2)

ID	LEGALSHIELD AREA OF LAW	ASSOCIATED WITH +/- LIFE EVENT	HISTORICAL DATA	NARROW SCOPE	INCLUDE IN DATASET
1	Administrative Law	Ambiguous		✓	
2	Automobile Accident	-	✓	✓	✓
3	Banking	Ambiguous	✓		
4	Bankruptcy	-	✓	✓	✓
5	Business License, Fees, etc.	Ambiguous	✓	✓	✓
6	Civil Litigation	-	✓	✓	✓
7	Collection	-	✓	✓	✓
8	Consumer/Finance	Ambiguous	✓	✓	✓
9	Contract	Ambiguous	✓	✓	✓
10	Corporate	+	✓	✓	✓
11	Criminal	-	✓	✓	✓
12	Divorce	-		✓	
13	Divorce Uncontested	-		✓	
14	Education	-	✓	✓	✓
15	Elder Law	-	✓	✓	✓
16	Employment	Ambiguous	✓	✓	✓
17	Entertainment	Ambiguous		✓	
18	Estate Planning	Ambiguous	✓	✓	✓
19	Family Law	Ambiguous	✓	✓	✓
20	Firearm	Ambiguous		✓	
21	Foreclosure	-	✓	✓	✓
22	Franchise Law	Ambiguous		✓	
23	General Law	Ambiguous	✓		
24	Identity Theft	-		✓	
25	Immigration	Ambiguous	✓	✓	✓

# Filter AOL

Detailed Inclusion Filter Results (2/2)

ID	LEGALSHIELD AREA OF LAW	ASSOCIATED WITH +/- LIFE EVENT	HISTORICAL DATA	NARROW SCOPE	INCLUDE IN DATASET
26	Insurance	-	✓	✓	✓
27	Labor Law	-		✓	
28	Landlord Tenant	-	✓	✓	✓
29	Legal Malpractice	-		✓	
30	Loan Modification	Ambiguous		✓	
31	Medical Malpractice	-	✓	✓	✓
32	Military Law/Security Clearance	Ambiguous		✓	
33	Other	Ambiguous	✓		
34	Patents Combined	+	✓	✓	✓
35	Personal Injury	-	✓	✓	✓
36	Probate	-	✓	✓	✓
37	Product Liability	-		✓	
38	Public Service	Ambiguous		✓	
39	Real Estate	+	✓	✓	✓
40	Request for Service	Ambiguous			
41	Small Claims	-	✓	✓	✓
42	Social Security	-	✓	✓	✓
43	Tax	Ambiguous	✓		
44	Trademarks	+		✓	
45	Traffic	-	✓	✓	✓
46	Veteran's Affairs	Ambiguous		✓	
47	Will Workshop	Ambiguous		✓	
48	Workman's Compensation	-	✓	✓	✓
49	Wrongful Death	-		✓	
<b>TOTAL</b>			<b>31</b>	<b>44</b>	<b>27</b>

# Testing

Intake data from the 27 “qualifying” AOLs was then tested against 15 economic indicators of interest to assess potential predictive value.

## **MACROECONOMIC INDICATORS:**

1. Conduct preliminary data cleaning, processing, and formatting.
2. Examine differences across plan types and subscriber samples to determine the optimal “subscriber universe” for index development
3. Test competing approaches for normalizing intake data.

## **HOUSING INDICATORS:**

4. Housing Starts
5. Existing Home Sales (NAR)
6. Residential Construction Permits
7. Small Business Optimism Index (NFIB)

## **FINANCIAL HEALTH INDICATORS:**

8. Total Bankruptcies (Total Filings; Epiq)
9. Delinquencies (All Loans & Leases; St. Louis Fed)
10. Foreclosures (All Mortgage Foreclosures Started; Mortgage Bankers Association)
11. Consumer Credit (Total; Revolving; Non-Revolving)
12. S&P 500 Index
13. Wilshire 5000 Index






## **CONFIDENCE INDICATORS:**

14. Consumer Confidence Index (Conference Board)
15. Small Business Optimism Index (NFIB)

# Testing

Three out of the final 27 AOLs demonstrated a strong statistical relationship to a handful of economic indicators.

## Scoping Intake Data

- 1 27 SCOPED AOLS:** 27 AOLs were subjected to several rounds of statistical testing. 
- 2 STATISTICAL RELATIONSHIP:** Test for correlation across various transformations. 
- 3 TRACKING HISTORICAL TREND:** Visually assess AOL to determine how closely it tracks its target indicator. 
- 4 LEADING PROPERTIES:** Test for leading / concurrent properties. 
- 5 ROBUST ACROSS TIME:** Confirm that relationships hold across various out-of-sample time periods. 

# Testing

Testing included computing various correlations, assessing historical trends and leading properties, and evaluating stability over time.

1

## BASIC COORELATIONS:

- Examined the correlation between AOL and target macro indicator using different transformations



2

## HISTORICAL TREND & LEADING PROPERTIES:

- Produced charts of transformed AOL and select economic indicators to confirm/reject if AOL tracks indicator's historical trend
- Examined AOLs on both a concurrent and leading basis

3

## STABILITY TESTS:

- Performed testing to confirm that relationship between AOL and macro indicator was not driven solely by a specific time period within the dataset and ensure that the relationship holds across time
- Test 1: Compared correlations between first half of data (2000 – 2007) and second half of data (2008 – 2015)
- Test 2: Compared correlations between random samples of the data
- Test 3: Compared earliest and latest data (2000 – 2005, 2010 – 2015) with middle of data (2006 – 2009)
- Test 4: Compared correlations between 20% of most recent data (Nov 2012 – Dec 2015) and remaining data

# Testing

Statistical Relationship Testing, Select Results

Correlation Results (2002 – 2017)				
LEGALSHIELD AREA OF LAW	TARGET INDICATOR	CORRELATION (LEVEL)	CORRELATION (Y/Y)	CORRELATION (Q/Q)
Bankruptcy	Bankruptcies	0.76	0.67	0.20
Foreclosure	Foreclosures	0.96	0.87	0.49
Real Estate	Existing Home Sales	0.85	0.58	0.36

# Testing

Historical Trend & Leading Properties Testing, Select Results

Historical Trend & Leading Properties Results (2002 – 2016)				
LEGALSHIELD AREA OF LAW	TARGET INDICATOR	TRACKS HISTORICAL TREND?	LEADING PROPERTIES	APPROXIMATE LEAD TIME
Bankruptcy	Bankruptcies	✓	✓	≈ 1 mo.
Foreclosure	Foreclosures	✓	r	Coincident*
Real Estate	Existing Home Sales	✓	✓	≈ 1 mo.*

\* These indices have a practice lead time of varying length due to the release schedule of the target series.

# Testing

Intertemporal Stability Testing, Select Results

Stability Test Results (2000 – 2015)							
LEGALSHIELD AREA OF LAW	TARGET MACRO INDICATOR(S)	TEST 1*	TEST 2*	TEST 3*	TEST 4*	OVERALL SCORE	KEY TAKEAWAYS
Bankruptcy	Bankruptcies	✓	✓	✓	✓	✓+	Performed well across all tests
Foreclosure	Foreclosures	✓	✓	✓	✓	✓+	Performed well across all tests
Real Estate	Existing Home Sales	r	✓	✓	✓	✓	Performed well on all but one test

\* Test 1: Compared correlations between first half of data (2000 – 2007) and second half of data (2008 – 2015)

\* Test 2: Compared correlations between random samples of the data

\* Test 3: Compared earliest and latest data (2000 – 2005, 2010 – 2015) with middle of data (2006 – 2009)

\* Test 4: Compared correlations between 20% of most recent data (Nov 2012 – Dec 2015) and remaining data

# Methodology:

## Composite Index Development



# Methodology

A five-step process was used to convert LegalShield data into composite indices.

- 1 SELECT AOLS:** Select individual AOLs to be included in the composite index, based on results of statistical tests and desired index “narrative” (e.g., consumer stress).
- 2 TRANSFORM AOLS:** Compute the month-on-month percent change for each AOL.
- 3 STANDARDIZE:** Create a standardization factor for each AOL, based on its standard deviation. Multiply each transformed AOL by the standardization factor to produce an “adjusted monthly contribution” for each AOL.
- 4 SUM COMPONENTS:** Sum the adjusted monthly contribution across each AOL to produce a monthly index growth rate.
- 5 REBASE TO 100:** Rebase the monthly index growth rate to a given month (January 2000 = 100) and to produce a monthly composite index.

# Testing

## Historical Trend & Leading Properties Test Results

Historical Trend & Leading Properties Results (2002 – 2016)				
COMPOSITE INDEX	TARGET INDICATOR	TRACKS HISTORICAL TREND?	LEADING PROPERTIES	APPROXIMATE LEAD TIME
Consumer Stress	Consumer Confidence	✓	✓	1 - 3 mo.
Housing Construction	Housing Starts	✓	✓	0 – 2 mo.*

\*In addition to its statistical lead time, the Index also has a timing advantage over housing starts of roughly a week due to release schedules.

# Testing

## Statistical Relationship Test Results

Correlation Results (2002 – 2017)				
COMPOSITE INDEX	TARGET INDICATOR	CORRELATION (INDEX)	CORRELATION (Y/Y)	CORRELATION (Q/Q)
Consumer Stress	Consumer Confidence	-0.85	-0.58	-0.33
Housing Construction	Housing Starts	0.88	0.55	0.23

# Testing

## Intertemporal Stability Tests

Stability Test Results (2000 – 2015)							
COMPOSITE INDEX	TARGET INDICATOR	TEST 1*	TEST 2*	TEST 3*	TEST 4*	OVERALL SCORE	KEY TAKEAWAYS
Consumer Stress	Consumer Confidence	r	✓	✓	✓	✓	Performed well on all but one test
Housing Construction	Housing Starts	r	✓	✓	✓	✓	Performed well on all but one test

Test 1: Compared correlations between first half of data (2000 – 2007) and second half of data (2008 – 2015)

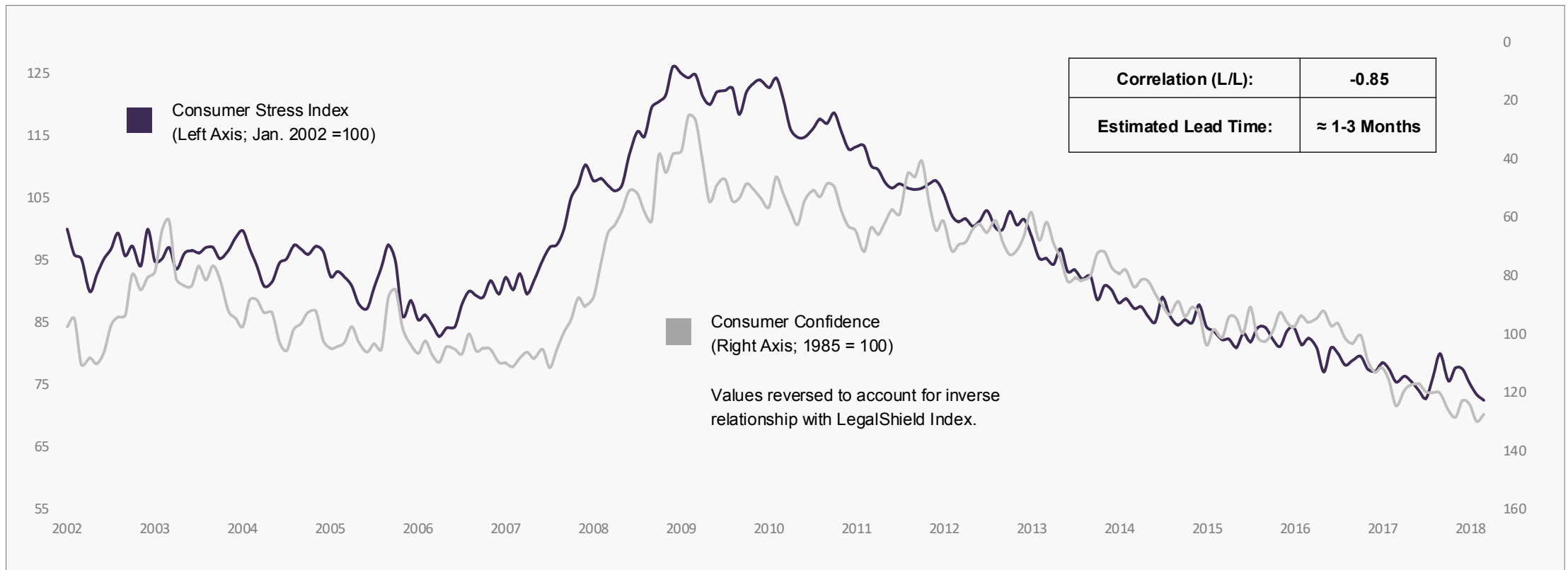
Test 2: Compared correlations between random samples of the data

Test 3: Compared earliest and latest data (2000 – 2005, 2010 – 2015) with middle of data (2006 – 2009)

Test 4: Compared correlations between 20% of most recent data (Nov 2012 – Dec 2015) and remaining data

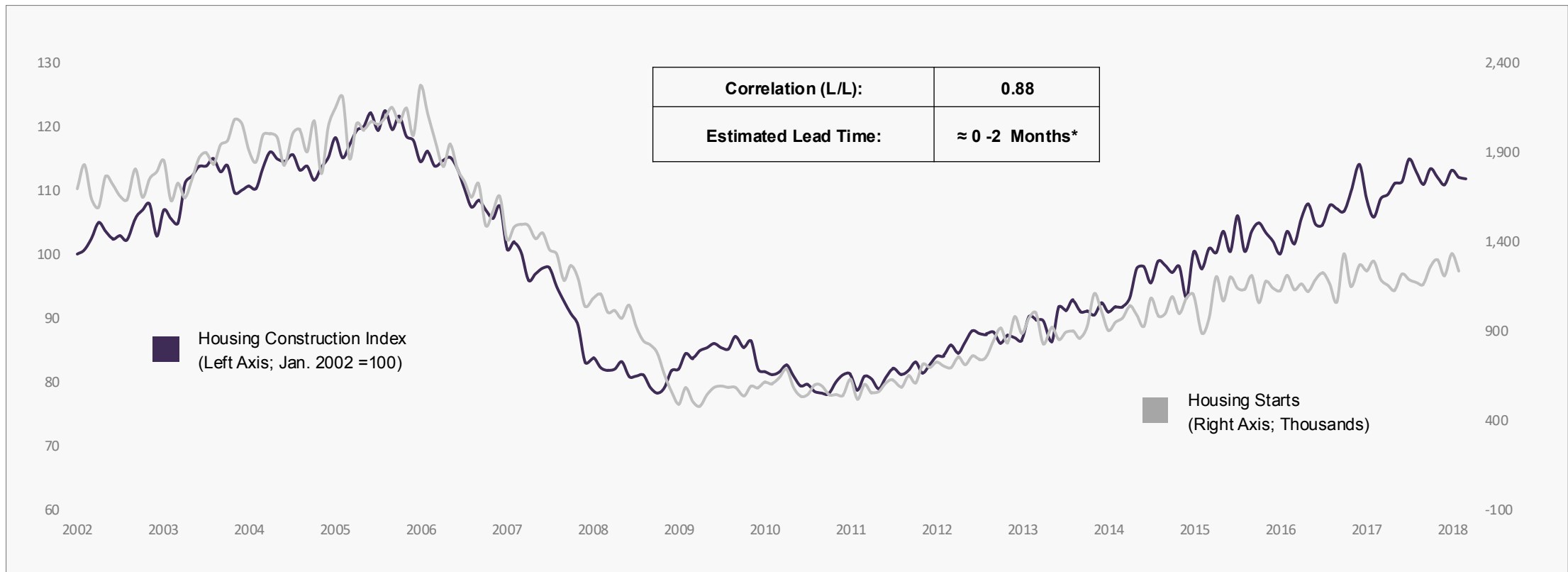
# Composite Index: Consumer Stress

AOLs: Bankruptcy; Foreclosure; Consumer Finance



# Composite Index: Housing Construction Index

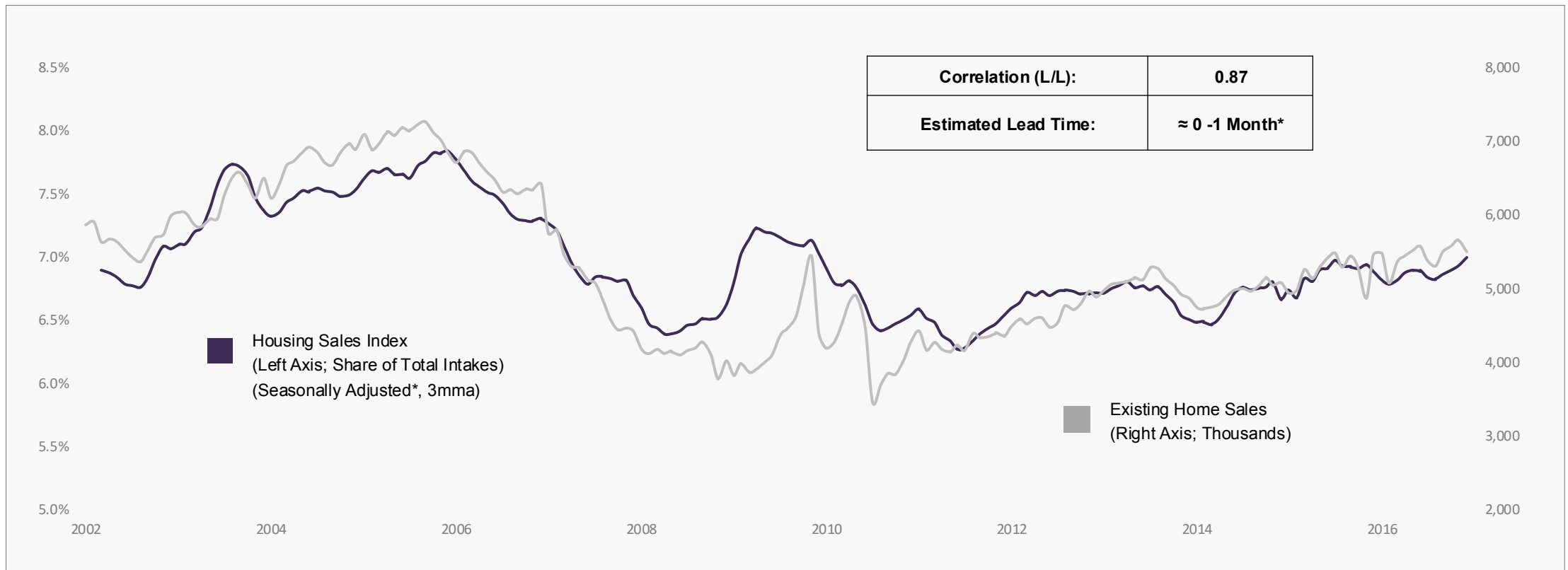
AOLs: Foreclosure; Real Estate\*



\*The Housing Construction Index component of the Housing Activity Index was seasonally adjusted using the Census Bureau's X-13 ARIMA-SEATS Seasonal Adjustment Program. In addition to its statistical lead time, the Index has a timing advantage over housing starts of roughly a week due to release schedules.

# AOL: Real Estate

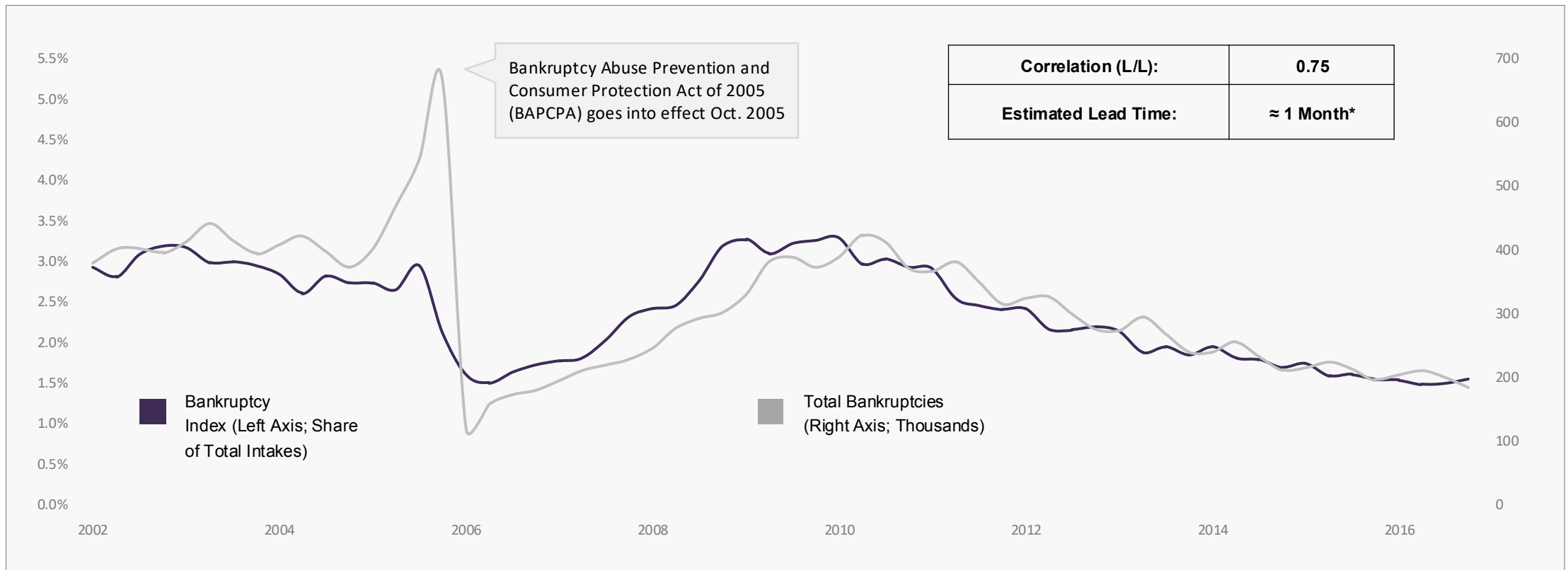
Target Series: Real Estate\*



\*The Housing Sales Index was seasonally adjusted using the Census Bureau's X-13 ARIMA-SEATS Seasonal Adjustment Program. In addition to its statistical lead time, the Index has a timing advantage of roughly two weeks over existing home sales due to release schedules.

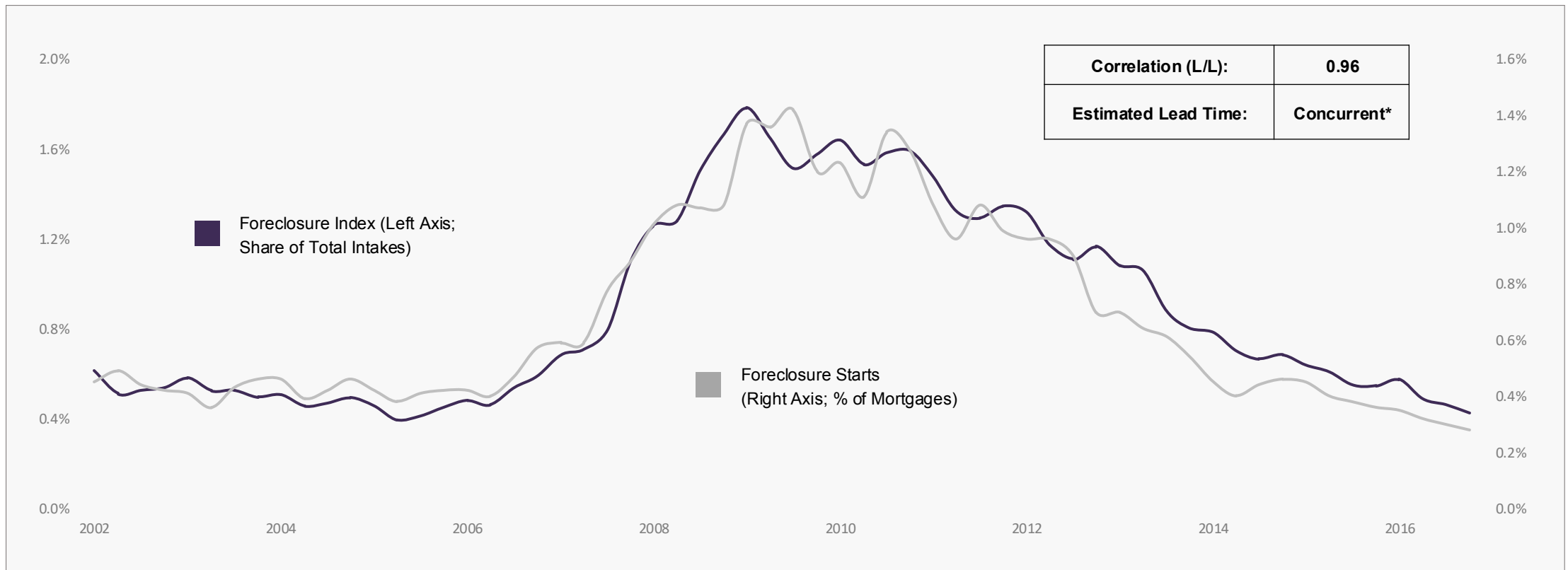
# AOL: Bankruptcy

Target Series: Consumer Bankruptcies



# AOL: Foreclosure

Target Series: Foreclosure Starts



\*Foreclosures starts are statistically coincident with the LegalShield Foreclosure Index, but the Index has a significant timing advantage time due to its monthly release (compared to the quarterly release of foreclosure starts).

# Results

## Summary of Key Findings

Summary of Results						
LEGALSHIELD LAW Index	TARGET SERIES	CORRELATION (LEVEL)	CORRELATION (Y/Y)	CORRELATION (Q/Q)	APPROXIMATE LEAD TIME	ROBUST ACROSS TIME
Bankruptcy	Bankruptcies	0.76	0.67	0.20	≈ 1 mo.	✓+
Foreclosure	Foreclosures	0.96	0.87	0.49	Coincident*	✓+
Housing Sales	Existing Home Sales	0.85	0.58	0.36	≈ 0-1 mo.*	✓
Consumer Stress	Consumer Confidence	-0.85	-0.58	-0.33	≈ 1-3 mo.	✓
Housing Construction	Housing Starts	0.88	0.55	0.23	≈ 0-2 mo.*	✓

Thank you!



Economic  
Stress Index™

