



# 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

**Bottom Line:** The LegalShield Consumer Stress Index improved in December for the first time since August. Inflation and rising interest rates are headwinds for consumers, but the labor market remains strong and the Index is still quite low, suggesting that most consumers are well-positioned in the near-term to handle further rate hikes.

**Latest Reading:** In December, the LegalShield Consumer Stress Index decreased (improved) 1.5 points to 64.1 but was up 14% compared to a year prior. Meanwhile, the Conference Board's Consumer Confidence Index improved 6.9 points to 108.3.

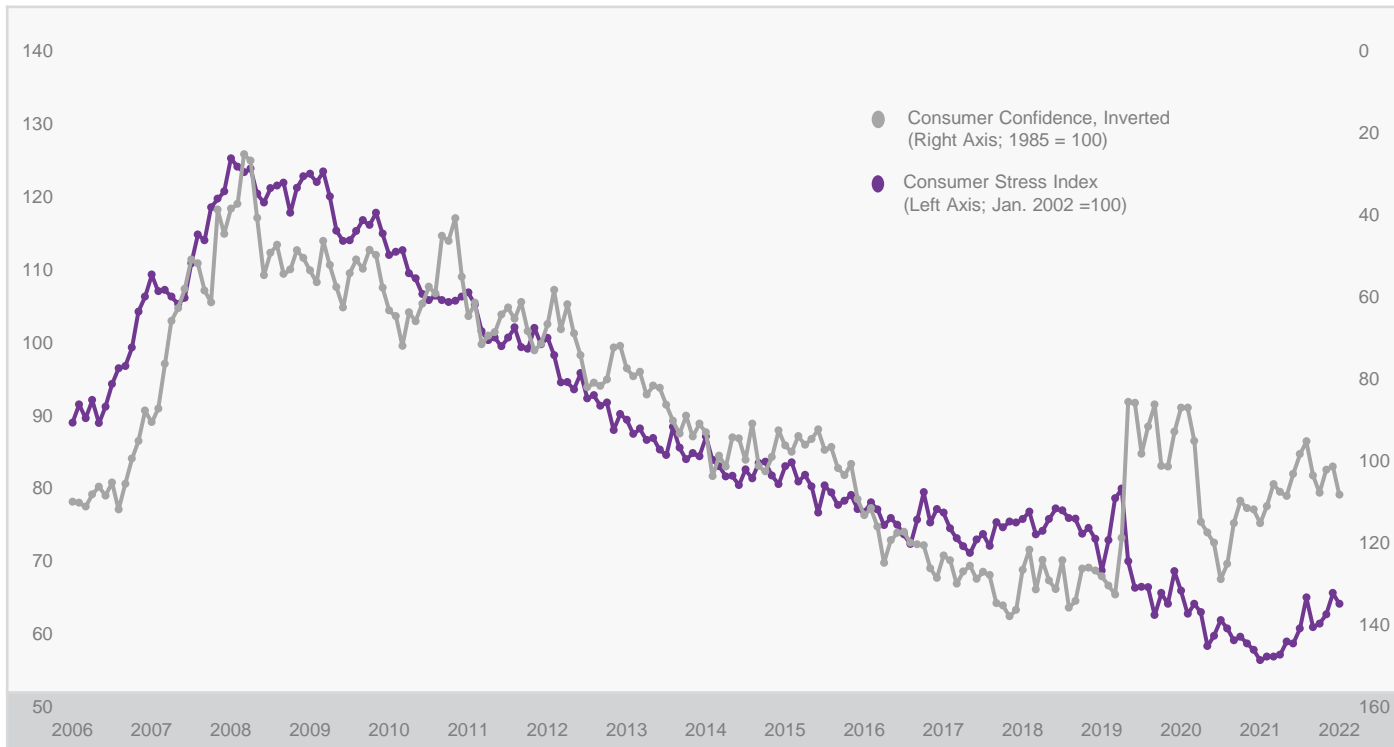
**Economic Context:** Though rising interest rates and persistent inflation are daunting headwinds for consumers, consumer stress remains muted by historical standards. Indeed, the labor market is still a bright spot for households, as the December employment report pointed to strong (albeit slowing) job growth. The unemployment rate fell to 3.5%, the labor force participation rate increased, and average hourly earnings growth slowed to 4.6% Y/Y — all positive developments. Even so, while headline inflation has eased in recent months, prices are still well above year-ago levels — particularly food prices, which are up 11% Y/Y. As wage growth continues to lag inflation, there is evidence that consumers are struggling to keep up with rising prices:

- **Holiday Shopping:** High prices took a toll on holiday shoppers: retail sales decreased in November, and while [holiday sales](#) were up 7.6% this year, after adjusting for inflation they were essentially flat.
- **Multiple Jobholders:** The number of multiple jobholders has risen 9.1% since December 2021. Specifically, the number of workers with a primary full-time job who also work a secondary part-time job increased 13% Y/Y, suggesting that workers are finding it increasingly difficult to cover household expenses.
- **Savings Dwindling:** The personal savings rate is near record low. In November, consumers saved just 2.4% of their income, roughly one-third of pre-pandemic readings.

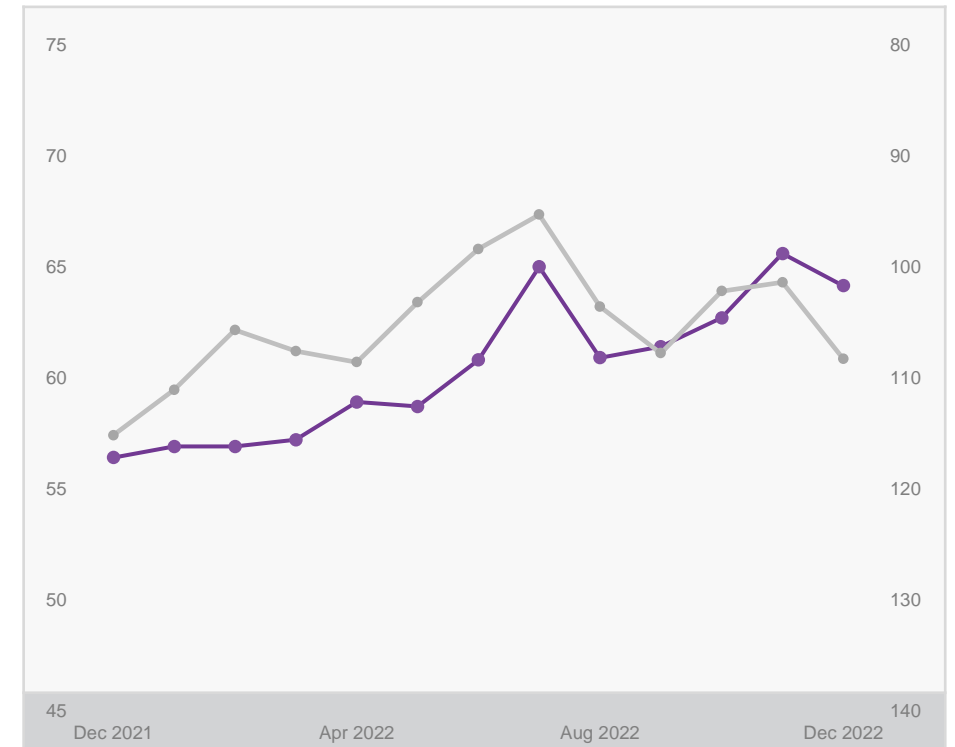
For now, however, consumers appear relatively resilient to rising prices, jobs are plentiful, and most measures of financial stress remain muted. However, we expect higher (and still rising) interest rates will take their toll on economic growth and employment during the first half of the year, which will contribute to rising consumer stress.

# Consumer Stress Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Bankruptcy Index

**Bottom Line:** The LegalShield Bankruptcy Index improved in December and remains at roughly half of its pre-pandemic level. Consumers appear well-positioned to manage their debt for now, and bankruptcies are likely to remain muted in the near term.

**Latest Reading:** The LegalShield Bankruptcy Index decreased (improved) 1.4 points in December to 25.5, decreasing from the highest reading of the year. In November, total seasonally adjusted bankruptcy filings edged up to 32,287, up 4.7% from a year prior.

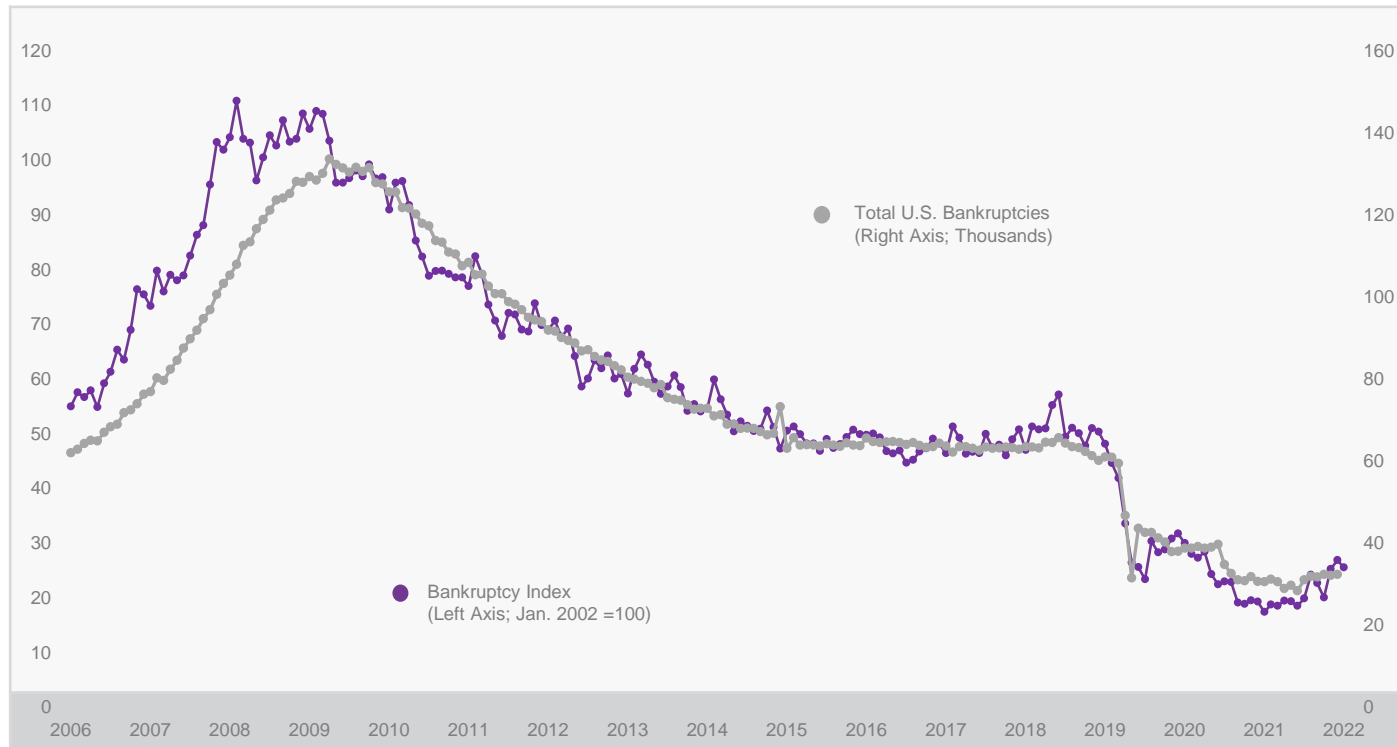
**Economic Context:** Despite growing economic headwinds, bankruptcies are well below pre-pandemic levels. There are some signs that debt delinquencies may rise in the coming months, particularly for young consumers, which could put upward pressure on bankruptcy filings. A recent [study](#) conducted by the Urban Institute found that one-in-five borrowers aged 18–24 have debt in collections. Because young borrowers are less likely to have amassed savings, they tend to rely on credit cards more than the general population. As the Federal Reserve raises interest rates and borrowing becomes more expensive, higher APRs will become a greater burden for credit card users who revolve a balance each month — a group comprising more than half of active cardholders.

Notably, because prices are growing faster than wages, consumers of all ages are saving less. Pandemic-era excess savings are [dwindling](#), which has pushed some consumers to rely more on credit. Indeed, revolving credit rose rapidly in 2022, surging well past pre-pandemic levels, and a recent TransUnion [forecast](#) predicted that personal loan and credit card delinquencies are expected to reach rates not seen since 2010.

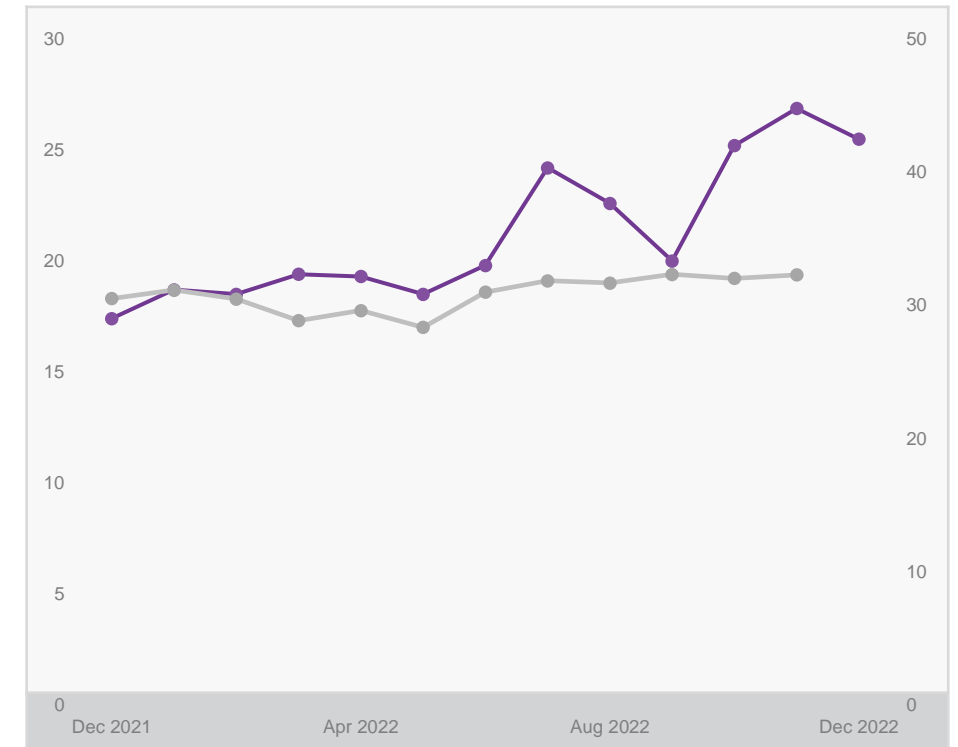
On a more positive note, however, overall delinquency rates remain historically low, and most consumers are still well-positioned to handle their debt burdens for the time being. Given low debt delinquencies and the strong labor market, it is unlikely that bankruptcies will rise dramatically in the coming months.

# Bankruptcy Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Foreclosure Index

**Bottom Line:** The LegalShield Foreclosure Index improved in December after slipping the previous month. Though foreclosure starts have gradually risen since the pandemic-era foreclosure moratorium expired, the index remains well below pre-pandemic levels. Over time, further normalization in foreclosure starts is expected.

**Latest Reading:** The LegalShield Foreclosure Index improved (decreased) 3.0 points to 37.1 in December after improving the prior month. Meanwhile, according to ATTOM, there were 30,677 properties with foreclosure filings in November, up 57% from a year prior but down 5% from the prior month.

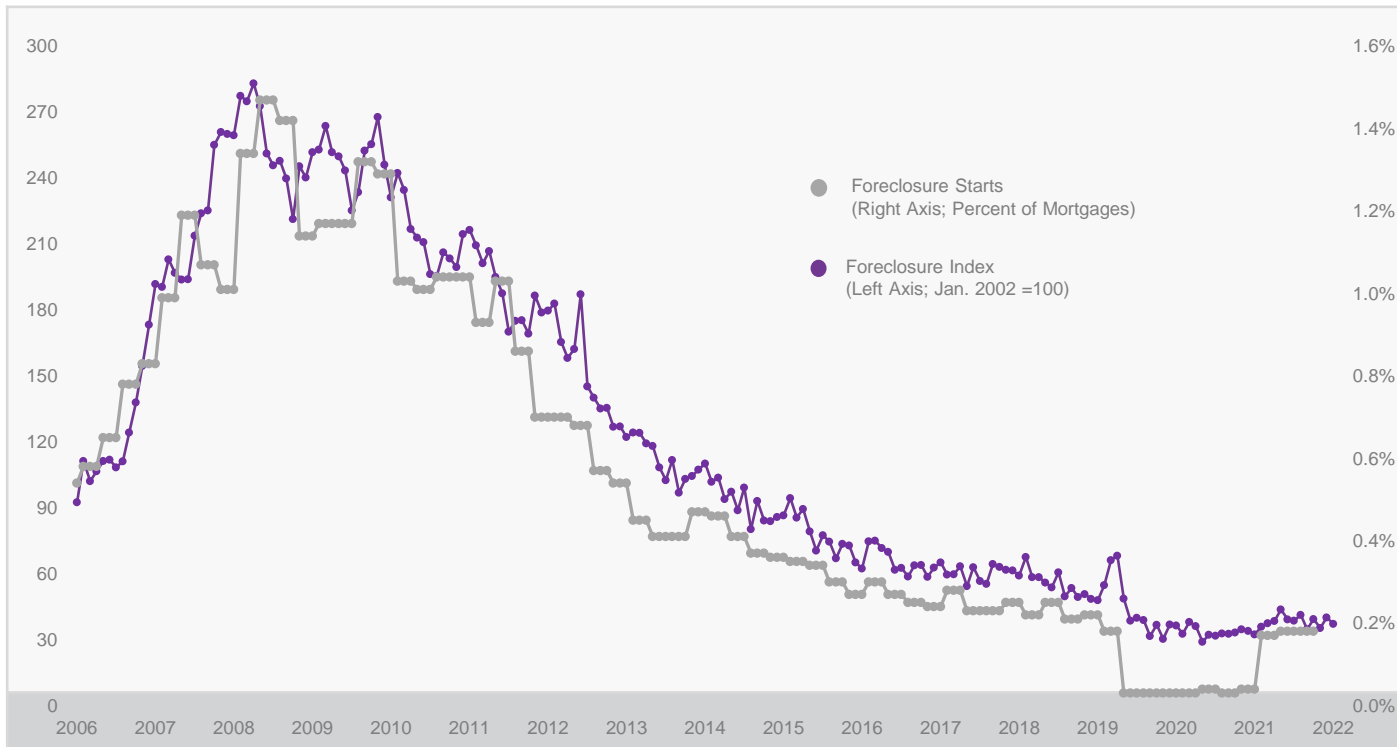
**Economic Context:** Foreclosures remain historically low, though they have been gradually increasing since the expiration of the foreclosure moratorium. In October, just 0.3% of homes were in [some state of foreclosure](#), near a record low. Further, mortgage delinquencies (a precursor to foreclosure) are historically low. In October, [only 2.8%](#) of all mortgages were delinquent, declining for the 19<sup>th</sup> consecutive month and nearing the lowest rate in two decades. According to the New York Fed's Household Debt and Credit Report, only 0.37% of total mortgage debt is seriously delinquent, the smallest share on record. Foreclosures will likely remain muted given the historically low rates of delinquent mortgages and delinquent mortgage debt.

Even if home-owners begin to slip on their mortgage payments, high levels of home equity are likely to prevent a large wave of foreclosures. In fact, approximately [9-in-10](#) borrowers in foreclosure have positive equity in their homes, which means that these borrowers would have the opportunity to refinance or sell at a profit if they are unable to hold onto their home.

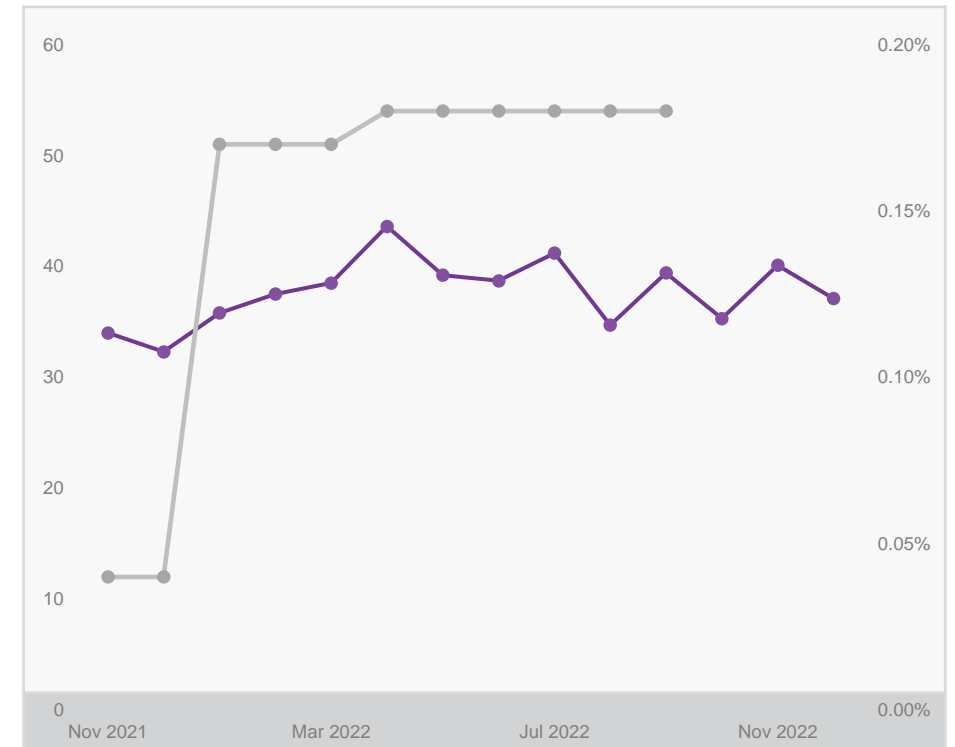
With muted mortgage delinquencies and high homeowner equity, it is unlikely that we will see a significant increase in foreclosure activity during the first half of 2023.

# Foreclosure Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Housing Construction Index

**Bottom Line:** The LegalShield Housing Construction Index worsened in December for the fourth consecutive month, falling to its lowest level since April 2020. Homebuilders face strong headwinds from rising interest rates as homebuilding becomes less affordable and the housing market cools.

**Latest Reading:** The LegalShield Housing Construction Index decreased (worsened) 0.6 point to 122.2 in December. Meanwhile, housing starts increased slightly in November, though they were down 16.4% Y/Y.

**Economic Context:** Construction continues to face challenges as the housing market weakens. Though mortgage rates eased somewhat in December, they remain well above 6%, dampening demand. Building material costs also remain high, with the producer price index for residential construction goods still up nearly 12% Y/Y as of November. With building costs still elevated, active homebuilders are taking on increasing risk as the market cools.

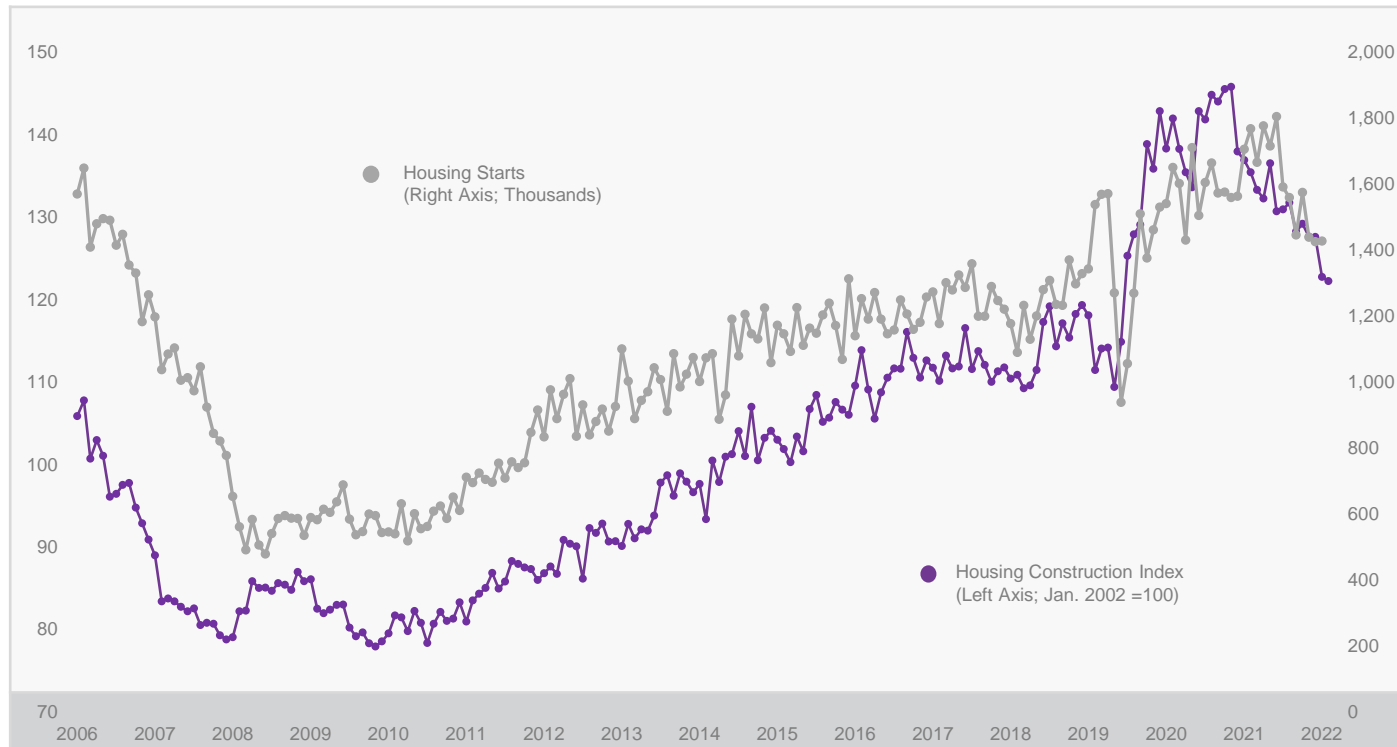
High costs and waning demand are souring the outlook for builders. [Home builder confidence](#) declined in every month last year, ultimately falling to 31 in December, the lowest reading since mid-2012 (excluding the spring of 2020). According to NAHB, roughly two-thirds of builders used incentives like mortgage rate buy-downs to increase sales in December. Further, builders enacted bigger price cuts in December, averaging an 8% reduction.

One rare bright spot in the housing market is that unwinding supply chains and cooling demand allowed housing completions to increase on a monthly and annual basis as of November. It is possible that construction backlogs could provide some element of support to construction activity in the near term, but this effect will eventually wane.

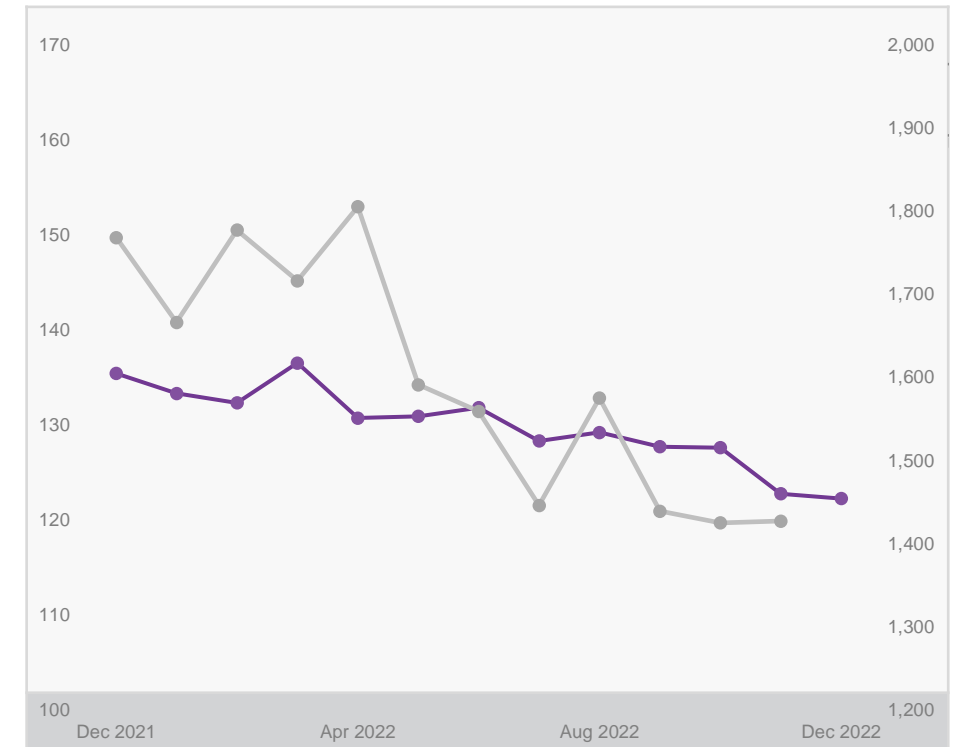
Builders are increasingly pessimistic about the housing market, and LegalShield data suggest that construction activity is likely to ease further in the coming months.

# Housing Construction Index

## Historical Trend Over Past 16 Years



## Movement Over Past 12 Months





# Housing Sales Index

**Bottom Line:** In December, the LegalShield Housing Sales Index worsened to its lowest level since April 2020. The housing market has softened as the Federal Reserve fights inflation, and LegalShield data suggest that existing home sales will weaken further in 2023.

**Latest Reading:** The LegalShield Housing Sales Index decreased (worsened) 2.5 points to 99.9 in December, falling 8.9% from a year prior. Meanwhile, existing home sales decreased 7.7% in November and were down 35.4% Y/Y.

**Economic Context:** The housing market continued to soften at the end of 2022, as home sales decreased in November for the tenth consecutive month. High mortgage rates and unaffordable monthly payments have decimated housing demand, which in turn has put downward pressure on home prices. According to the Case-Shiller Home Price Index, in the second half of 2022 home prices have suffered their steepest declines since the 2008–09 recession.

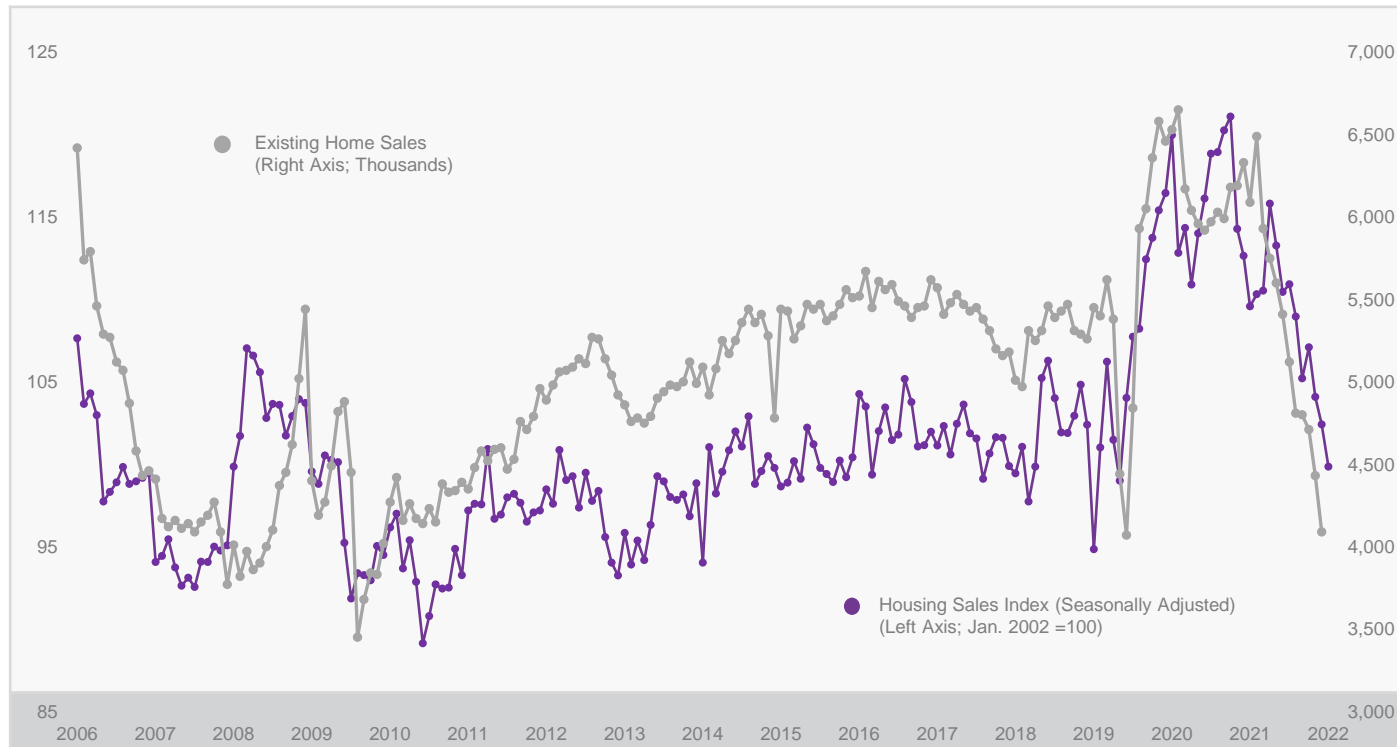
Despite modest improvements in mortgage rates as the year came to an end, potential home buyers remain broadly discouraged.

- [Fannie Mae's](#) Home Purchase Sentiment Index increased in December, but the index remains only slightly above its all-time low set in October.
- Three-in-four consumers think it is a bad time to buy a home, citing high prices and mortgage rates.
- [ATTOM's](#) Home Affordability Report found that typical home-ownership in Q3 2022 cost the average American 32.3% of their wages, a share considered unaffordable by traditional lending standards. This measure is at its highest point since 2007.
- [New house listings](#) were down 22% Y/Y in December, and [pending home sales](#), a leading indicator of future sales activity, declined in November to the second-lowest reading in 20 years.

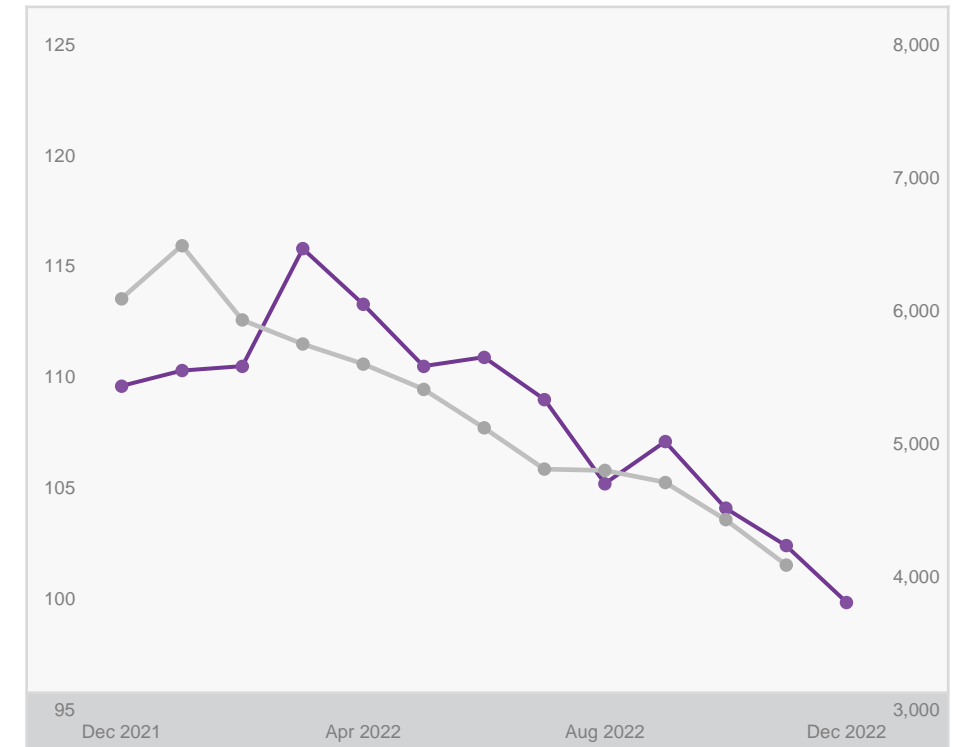
Given these trends, it is no surprise that LegalShield data point to continued weak sales activity in the near term, particularly given expectations of further Fed rate hikes.

# 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.

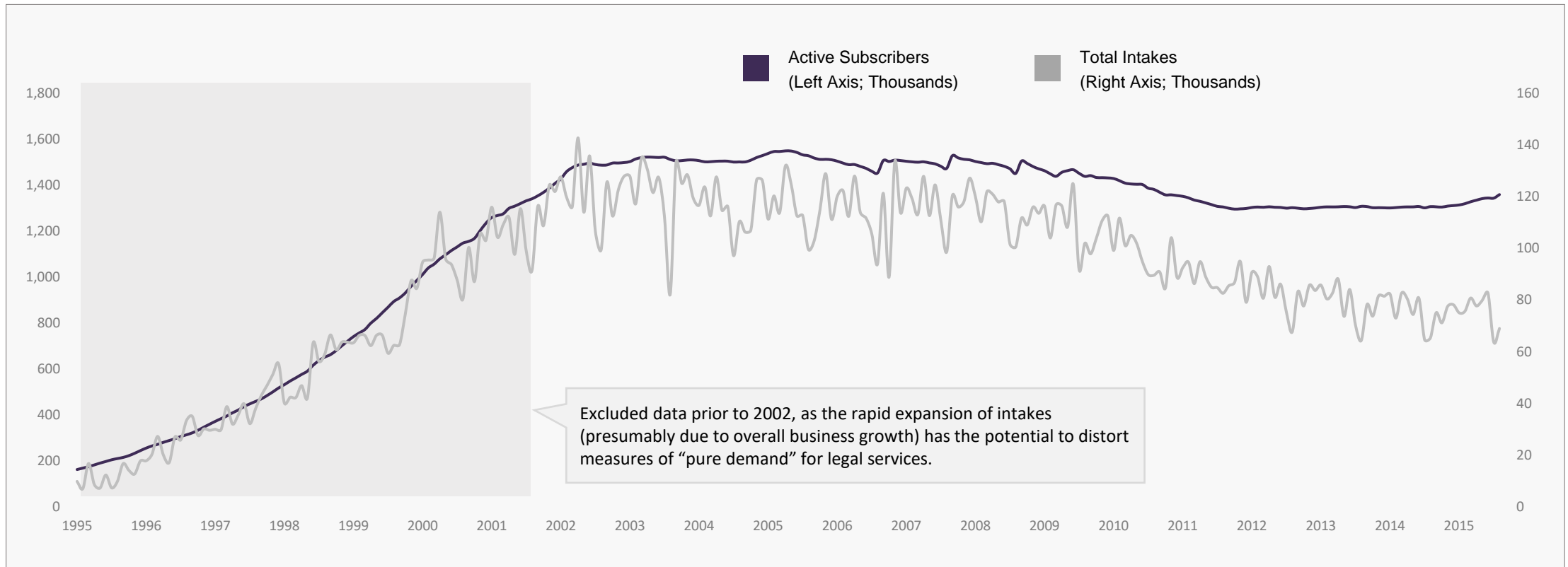
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## **DEVELOP INDEXES:**

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

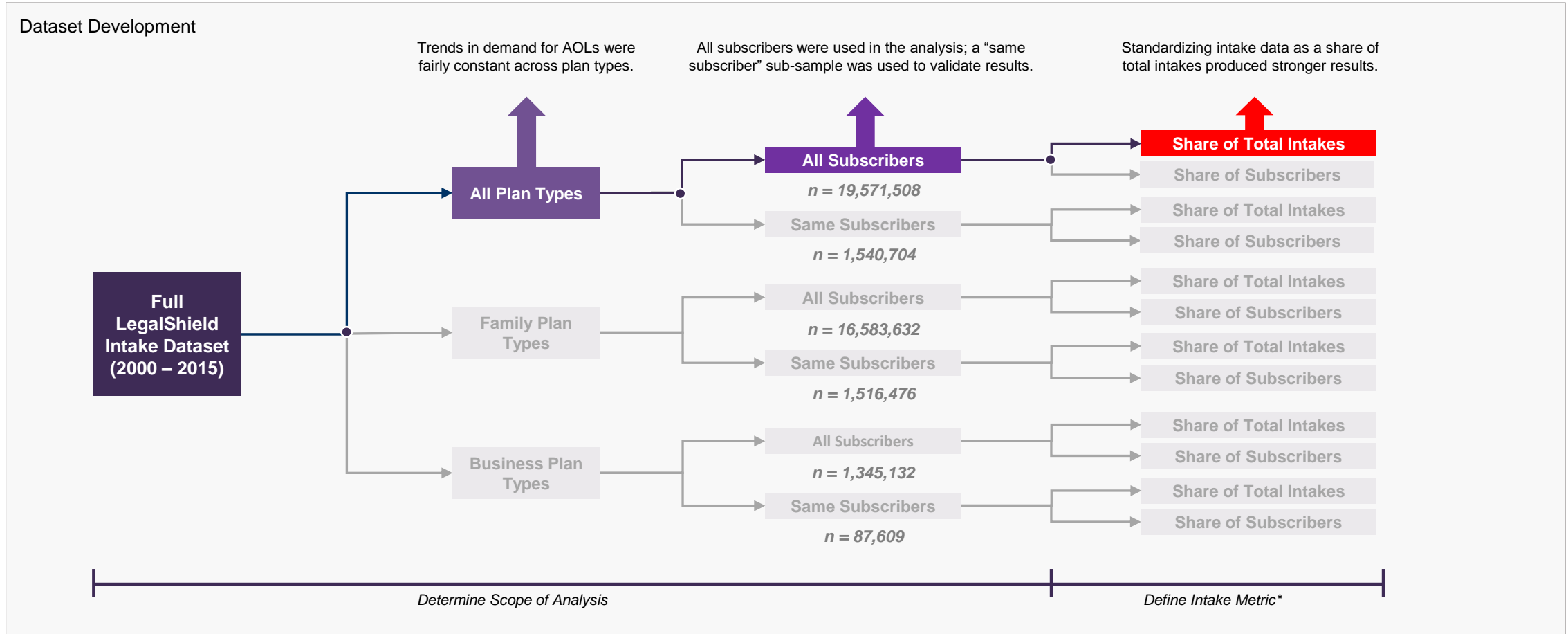
# Data Construction & Cleaning

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



# Analytical Scope

Testing and index development used intake data from all subscribers across all plan types, standardized by total intakes.



\*Standardizing intake data as a share of active subscribers controls for the change in the size of the subscriber base over time. Standardizing intake data as a share of total intakes controls for shifts in the relative demand for different AOLs 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)

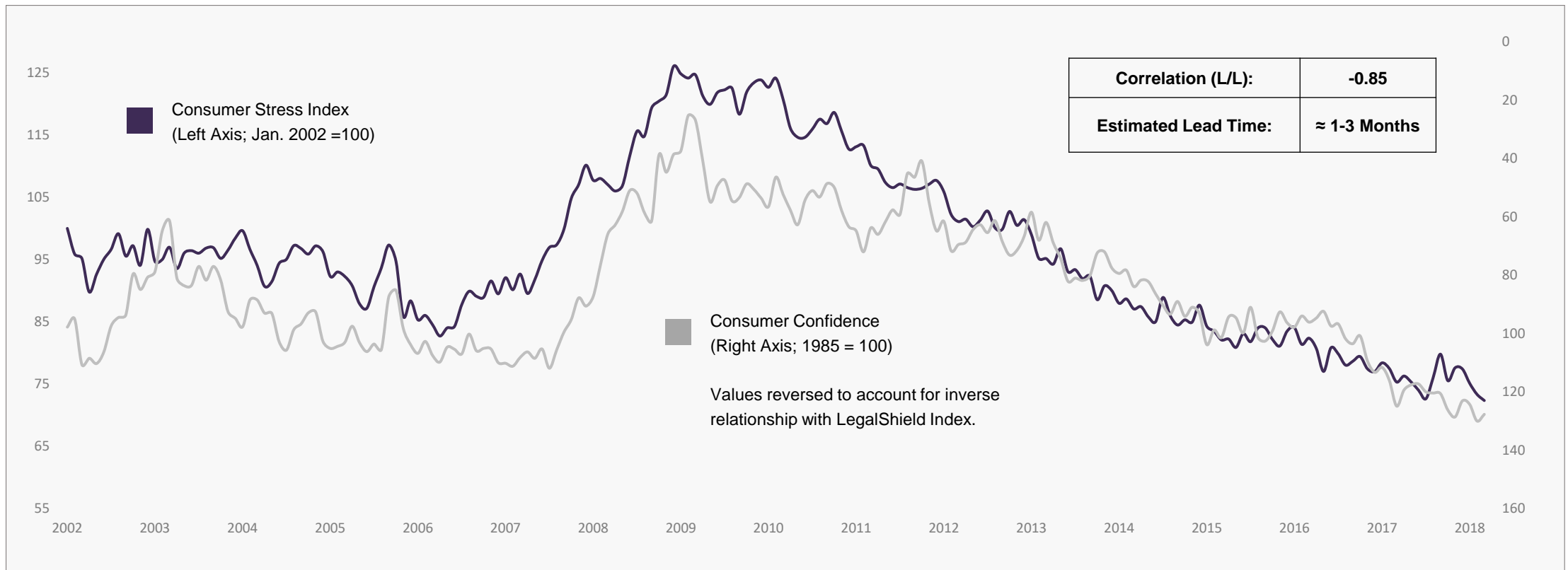
Test 2: Compared correlations between random samples of the data

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

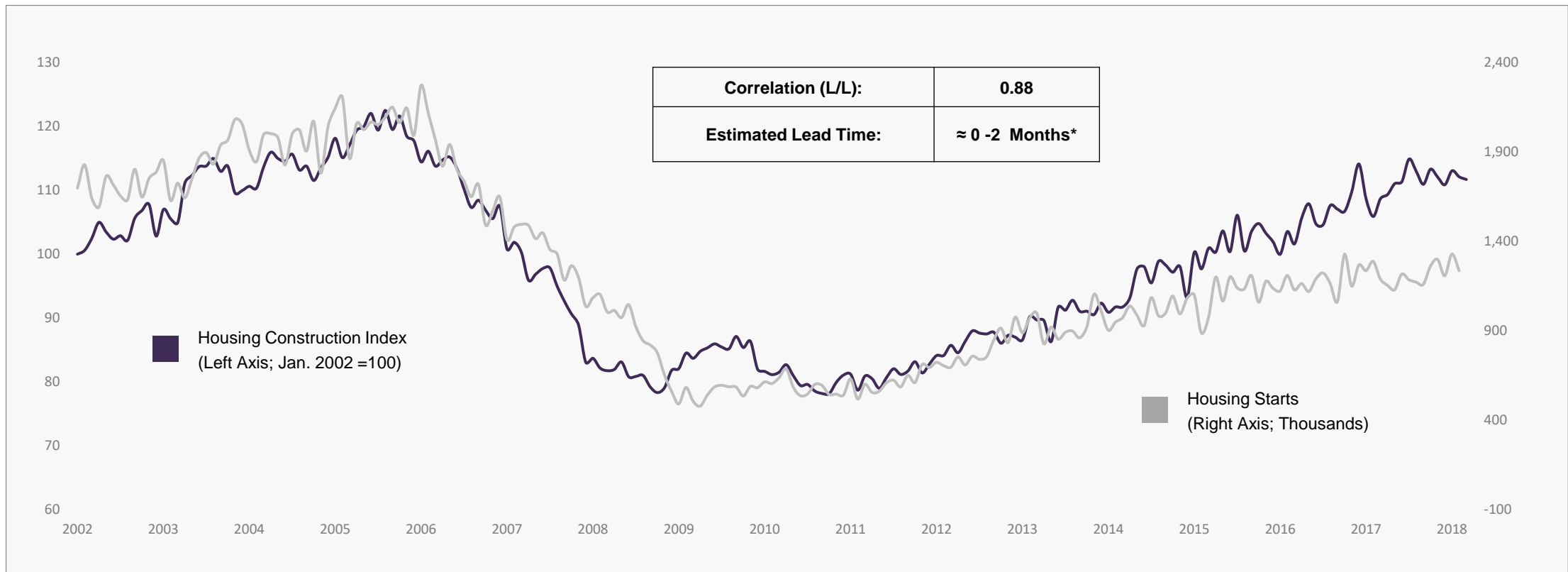
# Composite Index: Consumer Stress

AOLs: Bankruptcy; Foreclosure; Consumer Finance



# Composite Index: Housing Construction Index

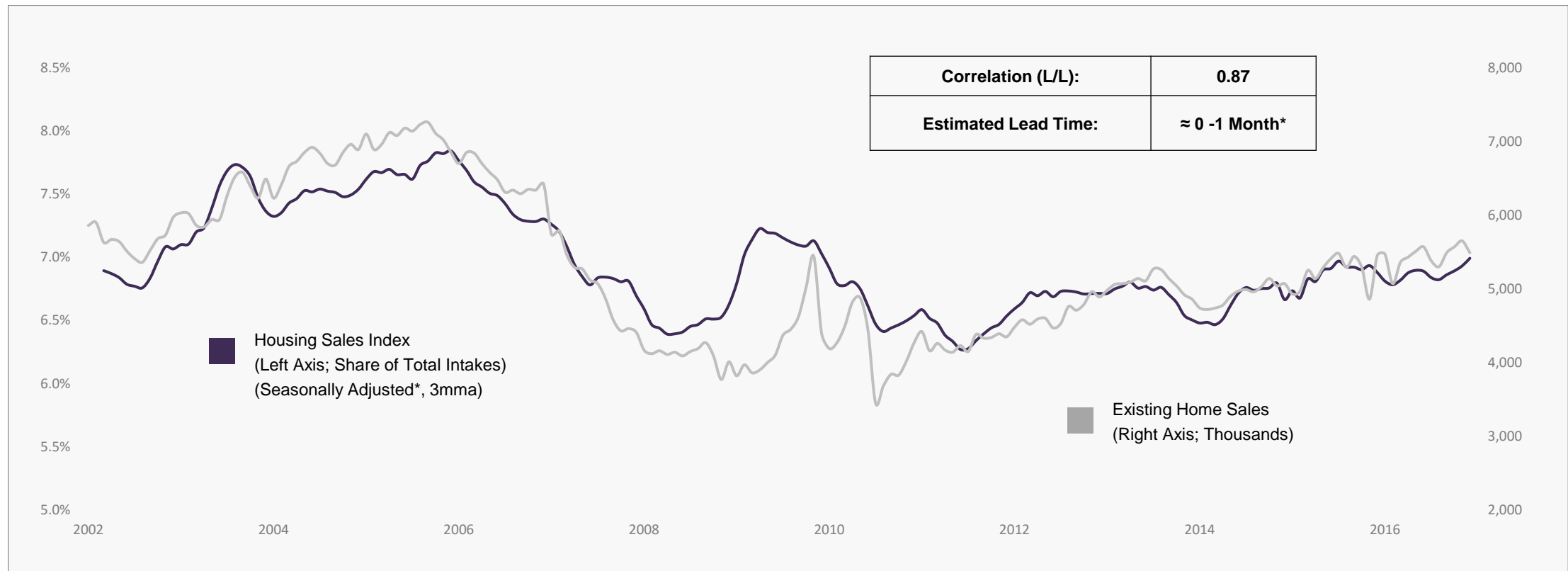
AOLs: Foreclosure; Real Estate\*



\*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

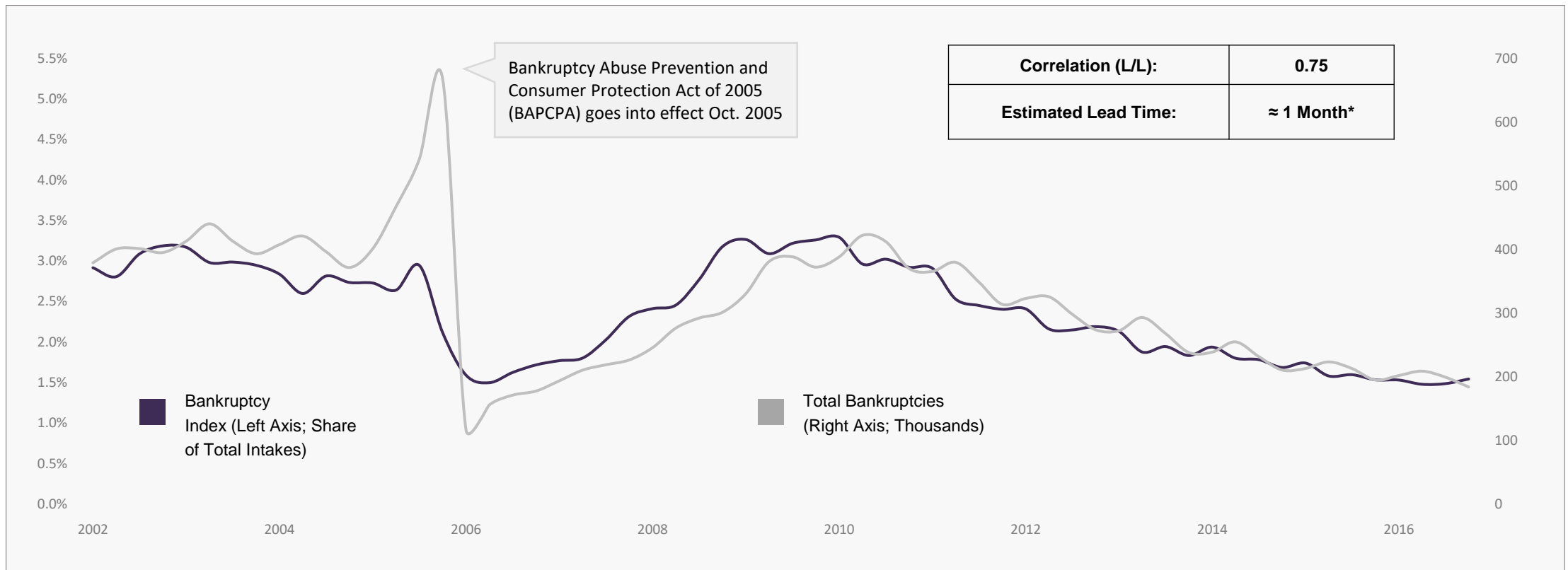
Target Series: Real Estate\*



\*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.

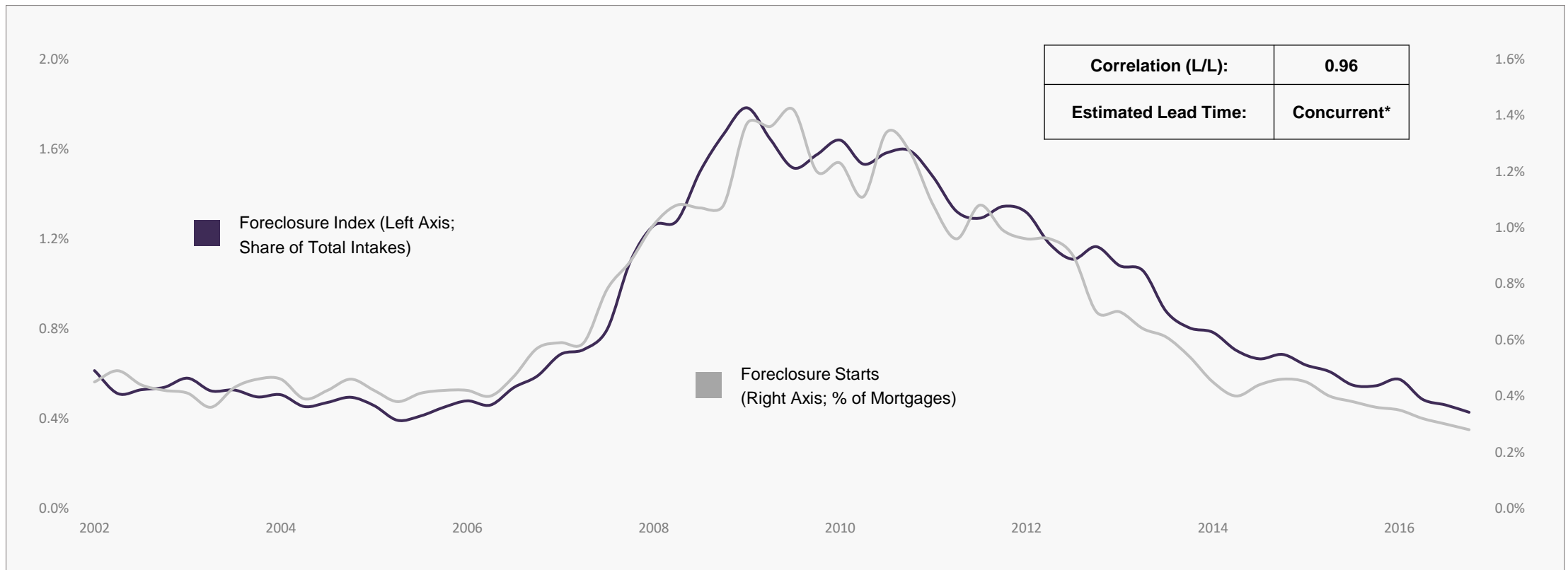
# AOL: Bankruptcy

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™**

