Identifying "Tipping Points" in Consumer Liabilities Using High Frequency Data

APPAM Fall Research Conference
November 2, 2017

Lowell Ricketts, Carlos Garriga and Don Schlagenhauf

These are my own views, and not necessarily the views of the Federal Reserve Bank of St. Louis, Federal Reserve System, or the Board of Governors

Introduction

- The Great Recession was in many ways a balance-sheet recession.

- Overly leveraged household balance sheets left families economically fragile.

- Macroeconomic shocks pushed households past their respective "tipping points".

- Our paper examines whether a "tipping point" can be predicted.

Research Questions

- Can high-frequency data estimate a payment/income ratio which will quantify and predict a "tipping point"?

- Our measure captures increasing financial duress the most for consumers with exceptional leverage.

- Does our payment/income ratio outperform other measures of default risk? Why or why not?

- Movement in FICO score captures more information. There are omitted factors which are limitations.

Methodology

- **CRISM:** Merge of Equifax credit bureau information with mortgage-level McDash servicing data.

- Sample of consumers experiencing bankruptcy or foreclosure; starts in June 2005 and ends in Dec. 2014.

- In lieu of measured income, Equifax has developed a product known as the **Personal Income Model**.

- Track total debt payment/income ratio 15 months prior to and after default.

Summary Statistics

Variable	December 2007	
	Defaulting Consumers	*Non-defaulting Consumers*
Total Debt (Thous. $)	293	249
	(319)	(302)
Monthly Payment ($)	3,218	2,884
	(5,998)	(7,274)
Personal Income (Thous. $)	45	58
	(19)	(24)
Payment/Income (Ratio)	**81**	**56**
	(123)	(105)
Seriously Delinquent Balance ($)	12,366	484
	(62,226)	(10,124)
FICO Score	622	724
	(104)	(82)
Sample Size	80,425	161,647

NOTE: Standard deviation in parentheses.

SOURCE: Equifax Credit Risk Insight Servicing Data
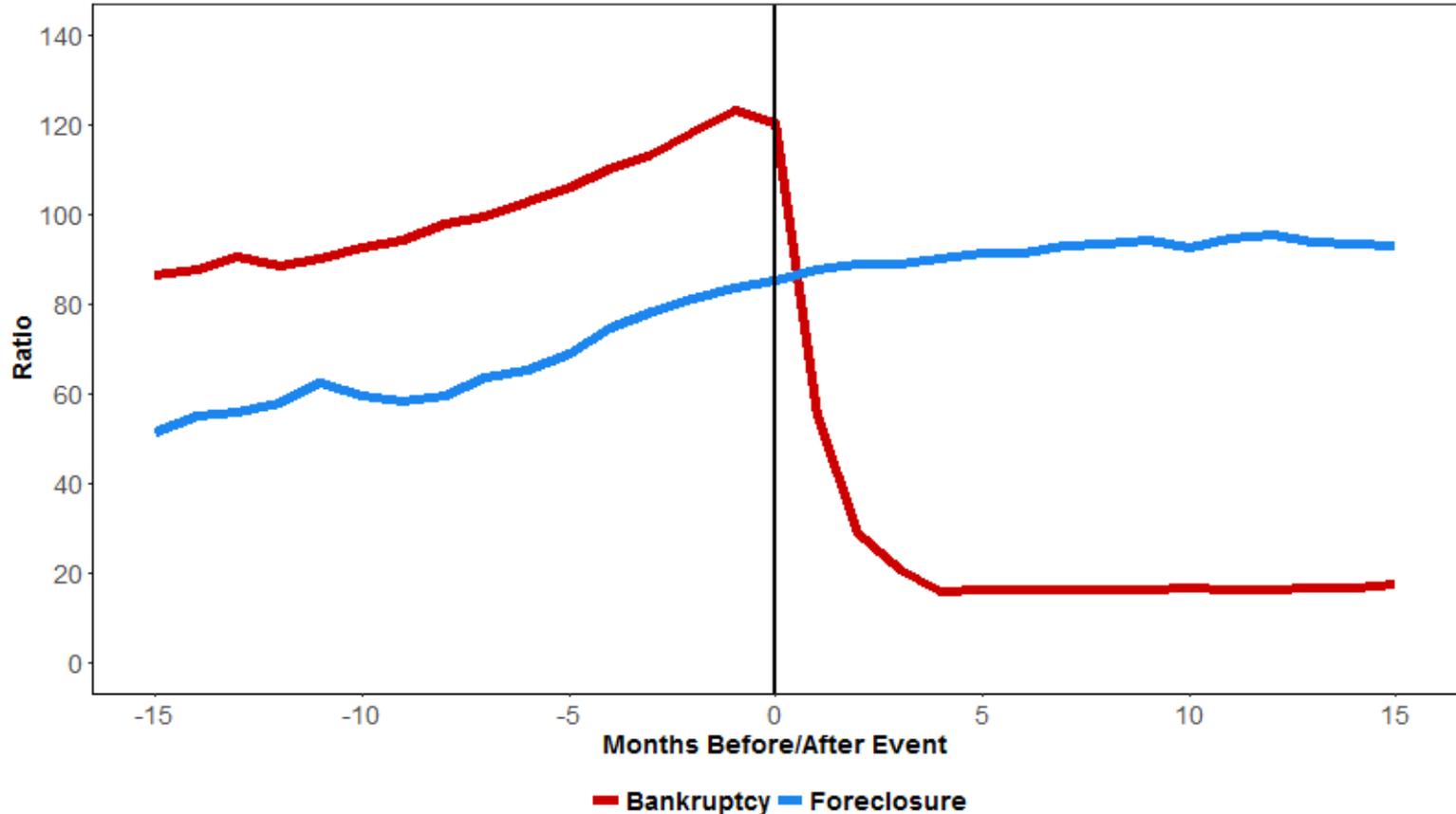
Mean FICO Score

Mean FICO Score Before and After Default
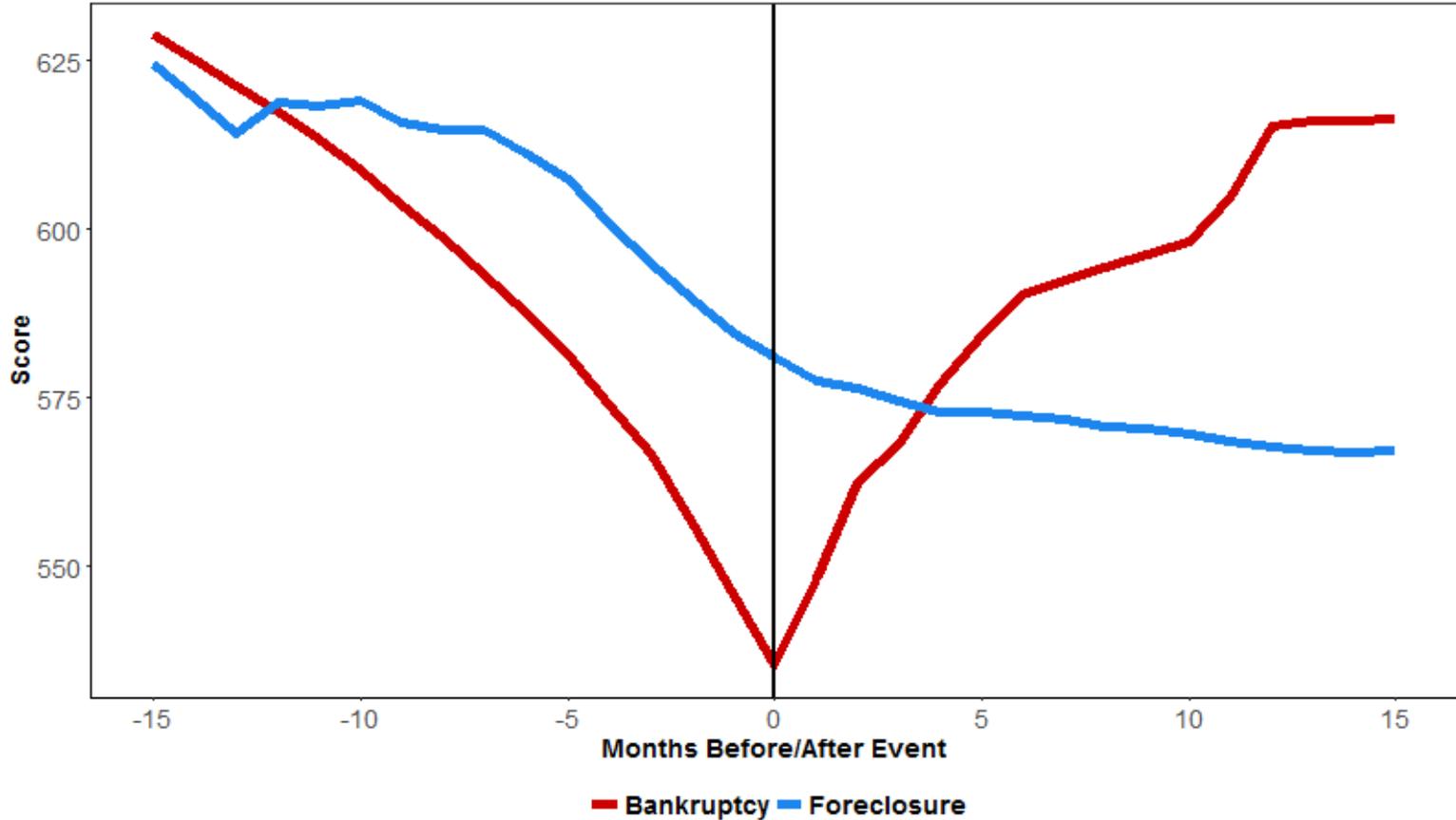
Source: Equifax Credit Risk Insight Servicing Data

Mean Payment/Income Ratio
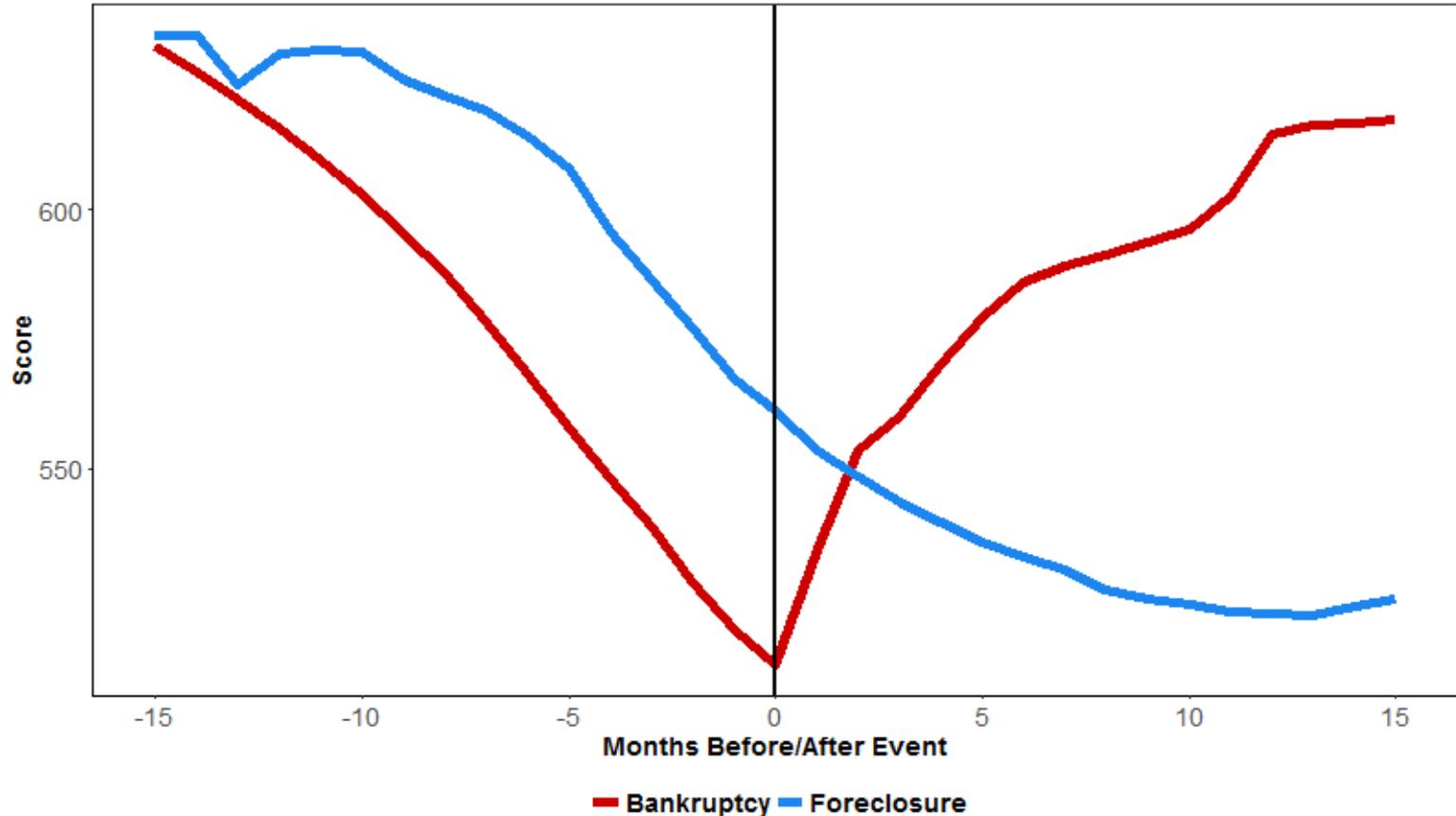

Mean Payment-Income Ratio Before and After Default

Mean FICO Score, 4th Quartile of P/I Ratio
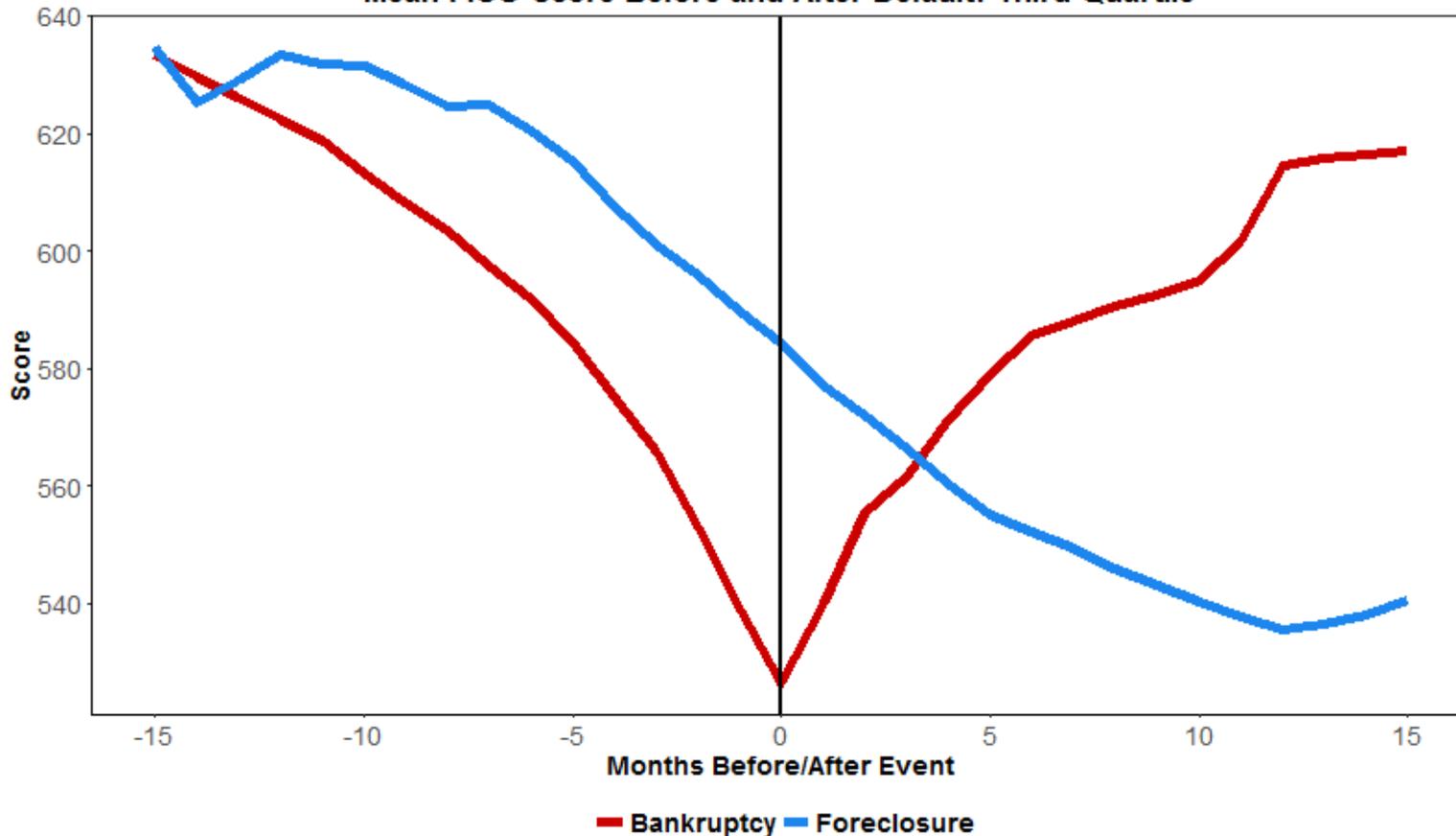

Mean FICO Score Before and After Default: Fourth Quartile

Source: Equifax Credit Risk Insight Servicing Data

Mean FICO Score, 3rd Quartile of P/I Ratio

Mean FICO Score Before and After Default: Third Quartile
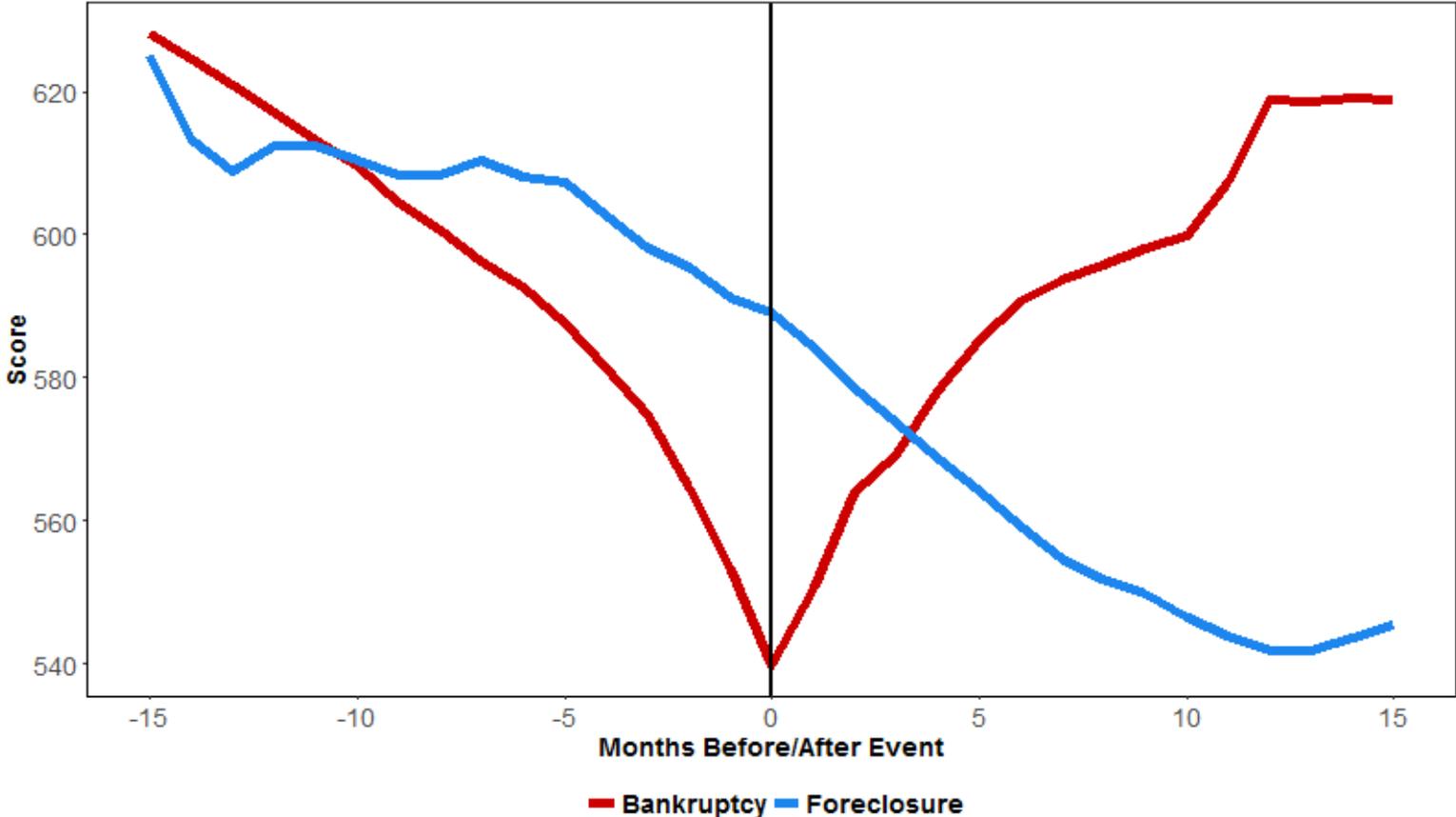
Source: Equifax Credit Risk Insight Servicing Data

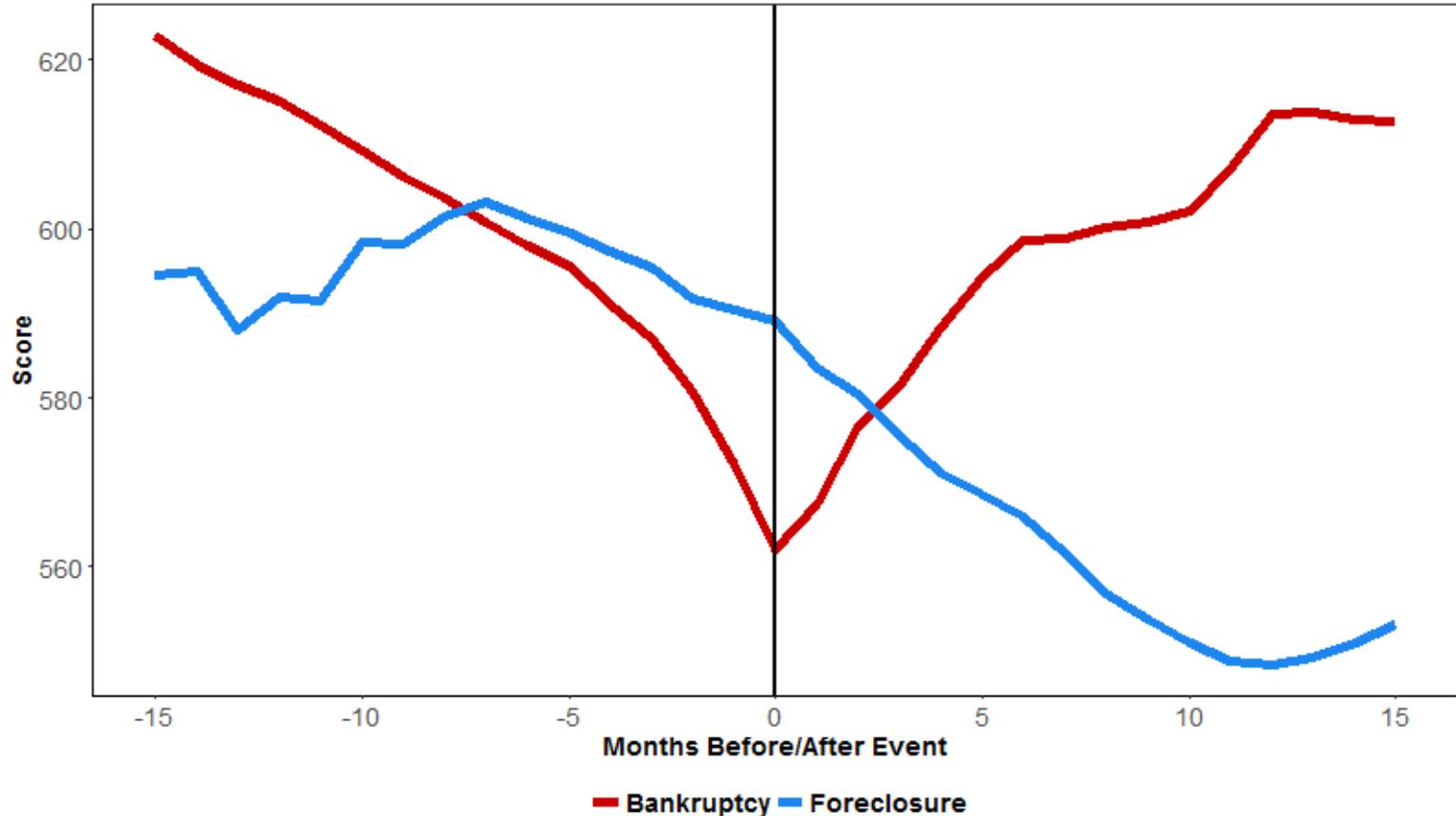# Mean FICO Score, 2nd Quartile of P/I Ratio

Mean FICO Score Before and After Default: Second Quartile

Source: Equifax Credit Risk Insight Servicing Data

Mean FICO Score, 1st Quartile of P/I Ratio

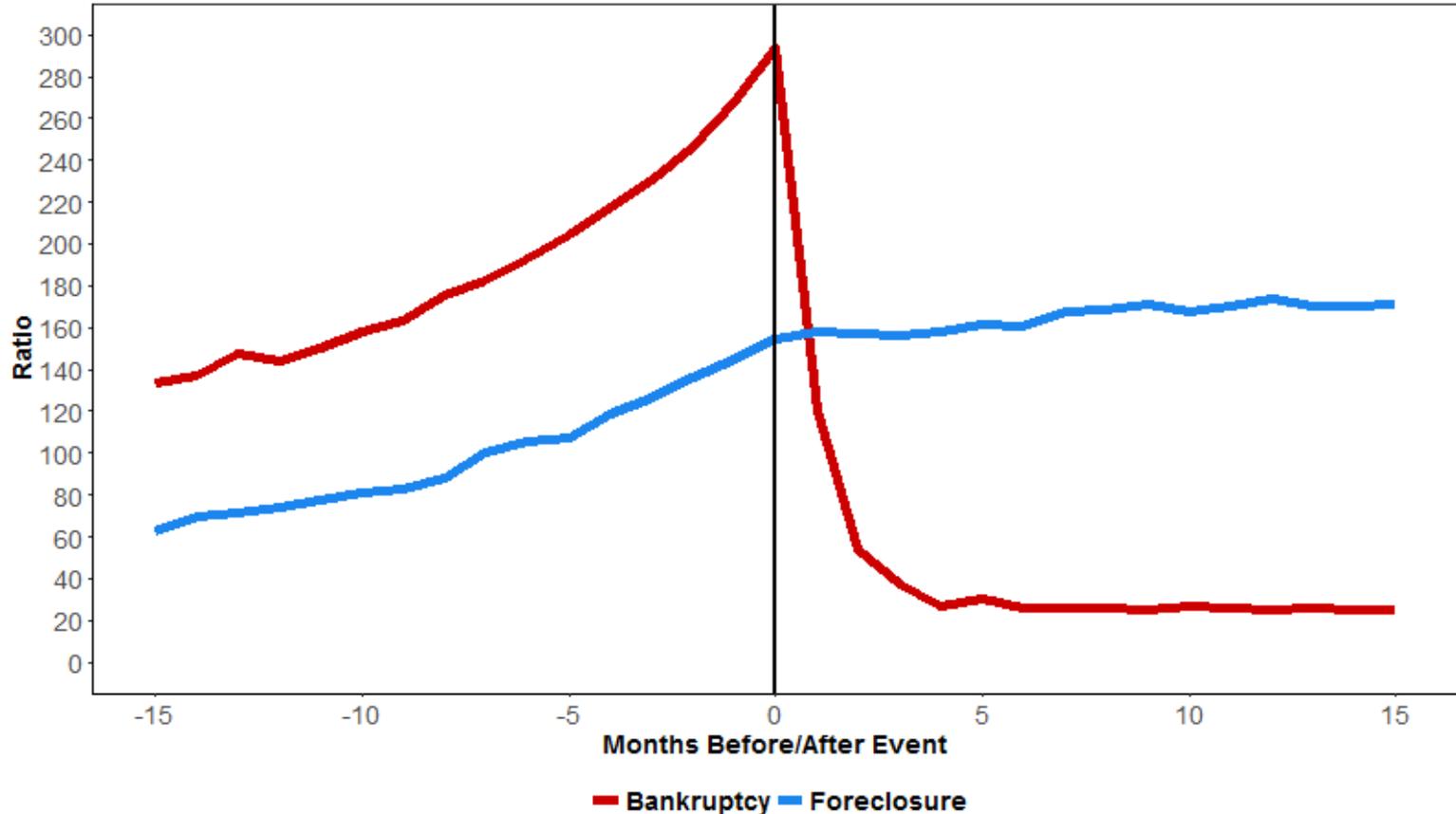Mean FICO Score Before and After Default: First Quartile

Source: Equifax Credit Risk Insight Servicing Data
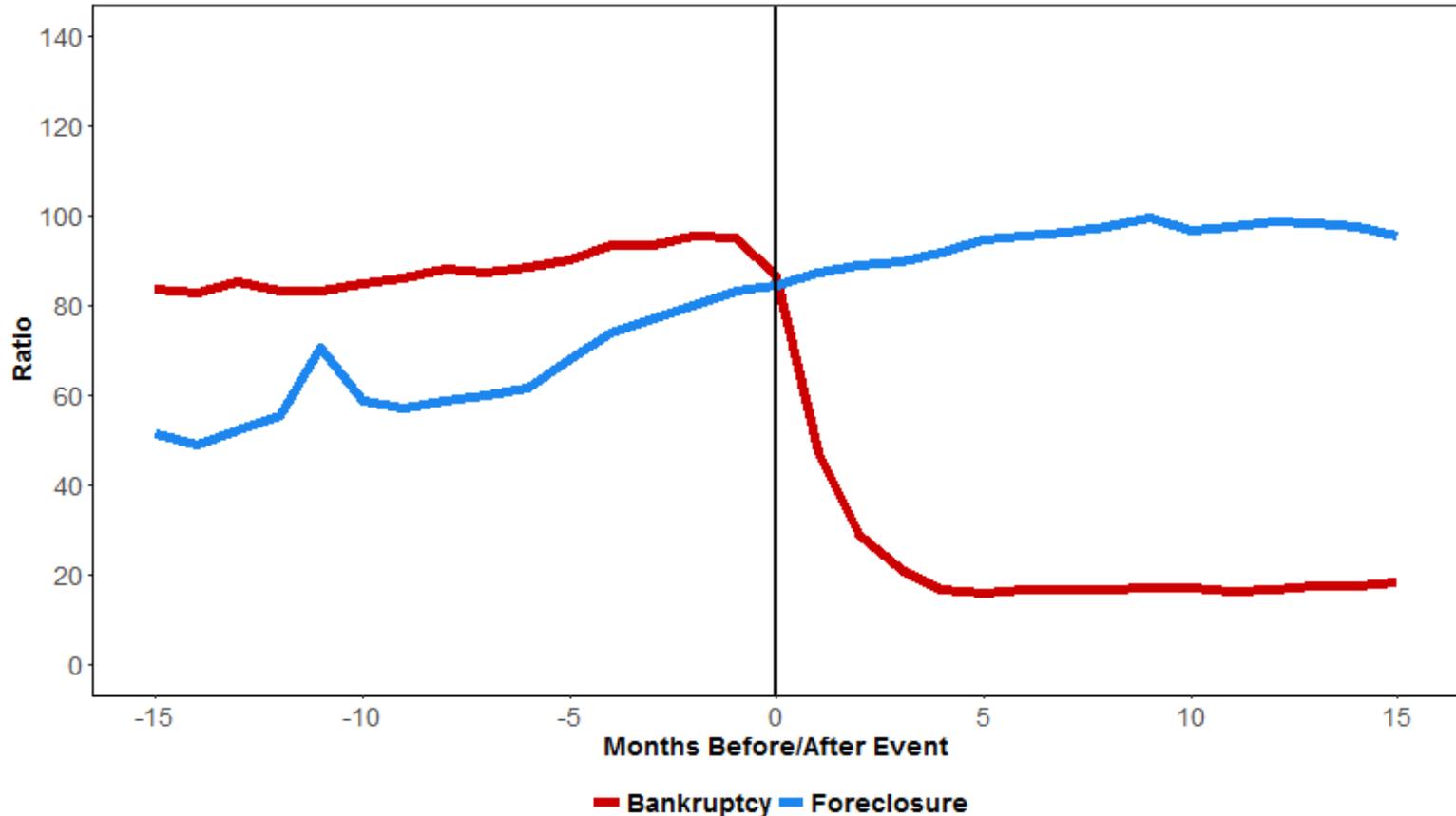
Mean P/I Ratio, 4ᵗʰ Quartile of P/I Ratio

Mean P/I Ratio Before and After Default, Fourth Quartile

Source: Equifax Credit Risk Insight Servicing Data

Mean P/I Ratio, 3rd Quartile of P/I Ratio

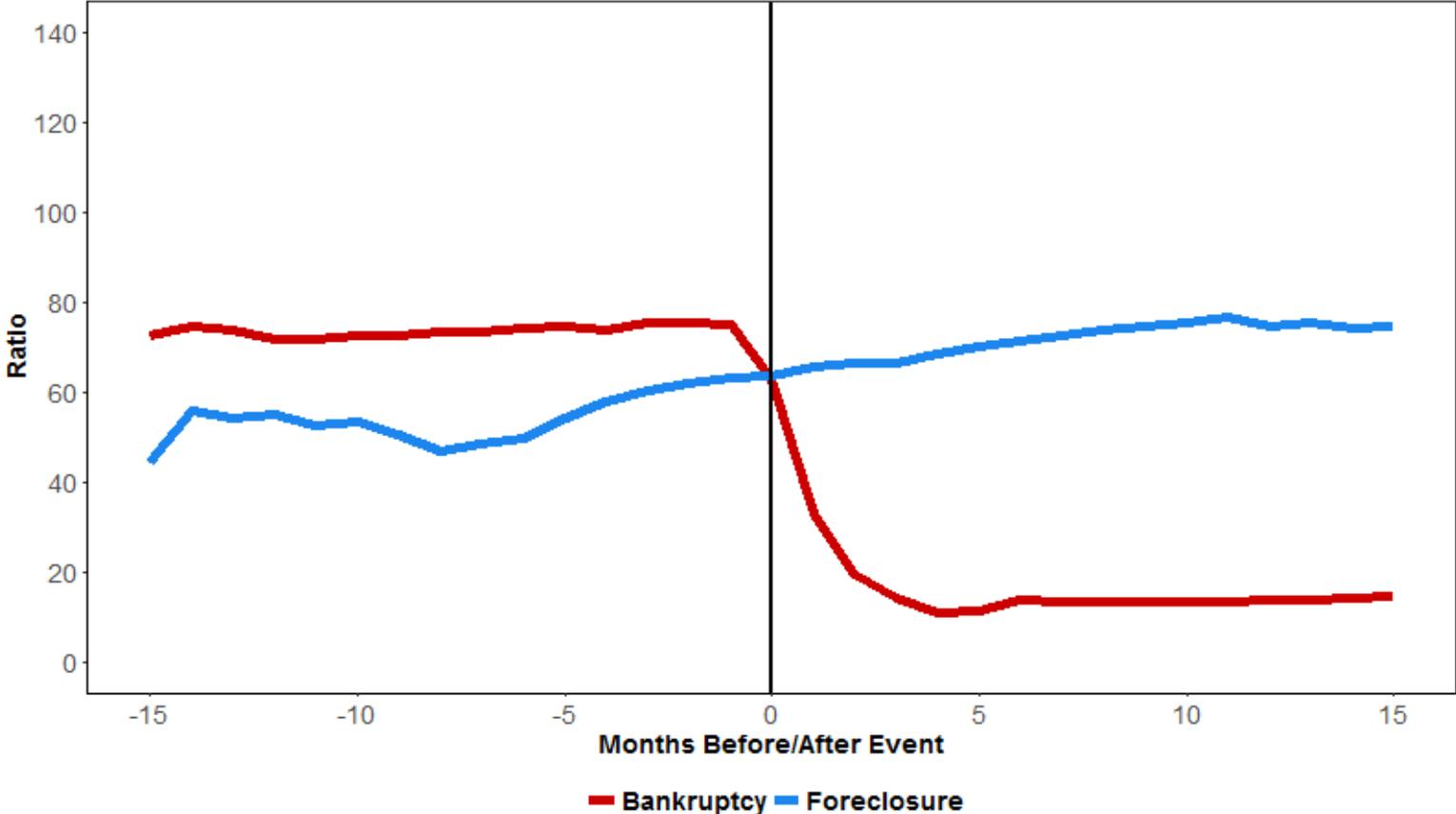Mean P/I Ratio Before and After Default, Third Quartile

Source: Equifax Credit Risk Insight Servicing Data
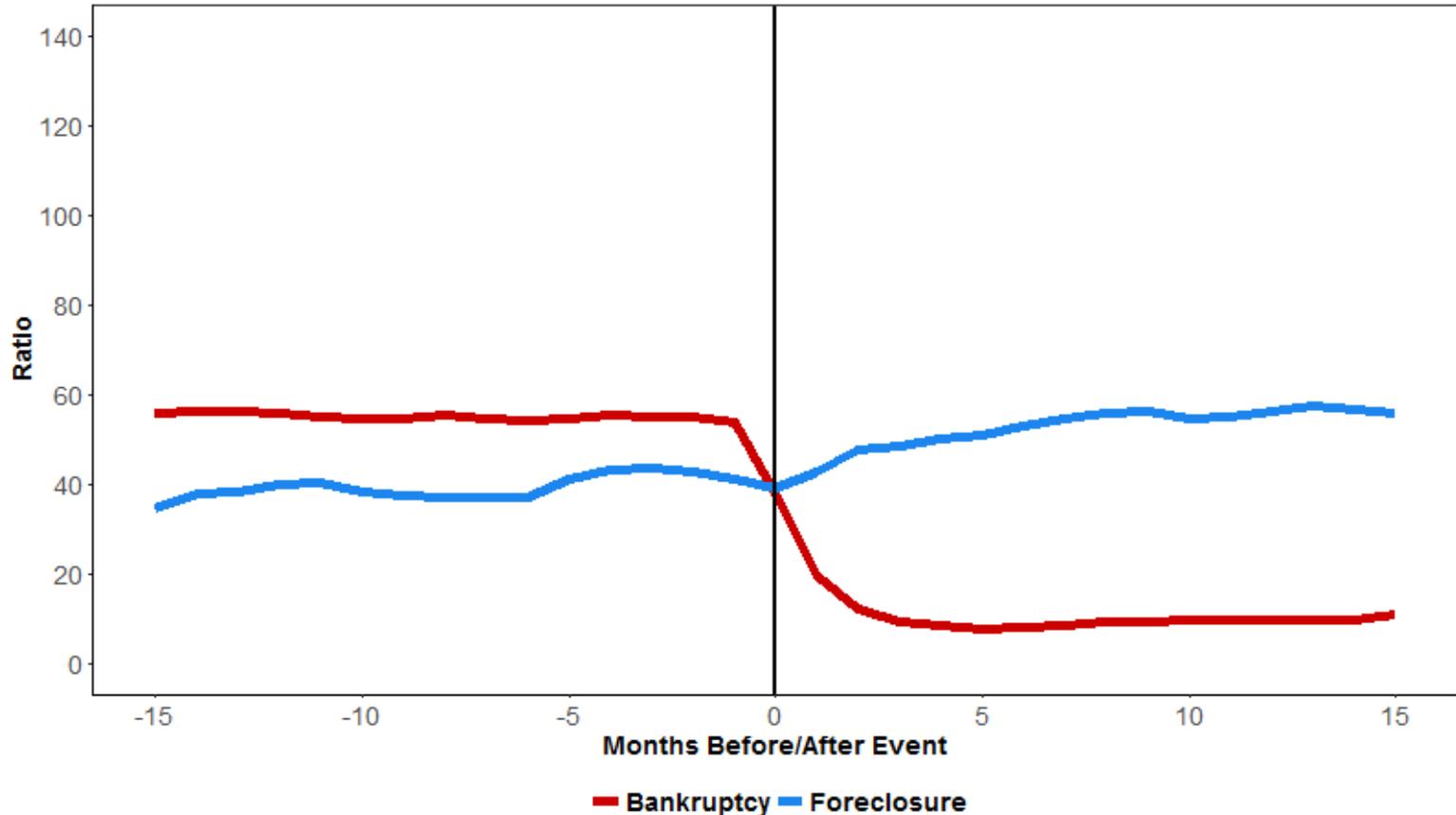
Mean P/I Ratio, 2nd Quartile of P/I Ratio

Mean P/I Ratio Before and After Default, Second Quartile

Source: Equifax Credit Risk Insight Servicing Data

Mean P/I Ratio, 1ˢᵗ Quartile of P/I Ratio

Mean P/I Ratio Before and After Default, First Quartile

Source: Equifax Credit Risk Insight Servicing Data

Analysis

- The P/I ratio performs well for most highly leveraged consumers but is uninformative for the rest.

- Movement in the FICO score captures increasing financial duress consistently across quartiles of P/I.

- Modeled P/I ratio omits other important factors such as availability of assets.

- Consumer-initiated default (bankruptcy) quickly provides relief while distress worsens after foreclosure.

Conclusions

- Similar to sovereign debt, increasing household leverage is not a perfect signal of impending default.

- High frequency data on the entire household balance sheet remains elusive.

- Personal bankruptcy appears to be far more restorative for consumer balance sheets.