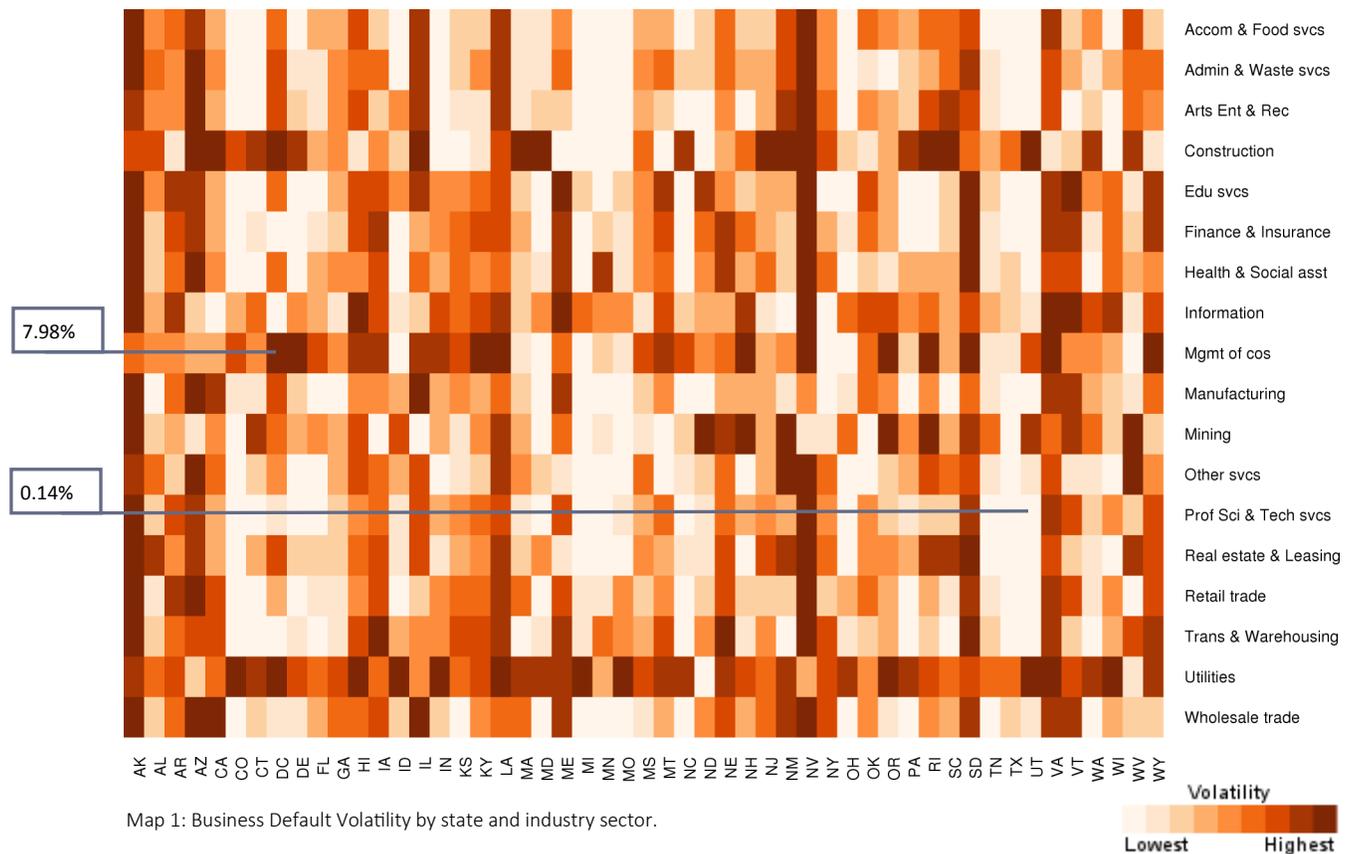


## BUSINESS DEFAULT VOLATILITY

Default rates vary for a myriad of reasons. They vary over time. They vary across geographies and industry sectors. And they vary across business size. Understanding this variation is important for constructing and managing credit portfolios. The WAIN Street Business Default Index database contains all the details necessary for gauging this variability. We present here a new measure designed to capture the variability in default rates—Business Default Volatility.



In the map above, segments based on industry sector and state are ranked using their default volatility. At 7.98%, DC businesses in the Management of companies industry sector have the highest volatility. And at 0.14%, UT based 'Professional, Scientific & Technical services' businesses have the lowest default volatility.

By using the appropriate business size sub-index as the base, Business Default Volatility provides us an additional perspective on credit risk and a tool for pricing exposures.

### Methodology

We use 36 months of default data. For each segment, we calculate the difference between the segment's default rate and the index. The difference can be higher or lower and is not symmetric. We weight the average higher and lower difference for each segment with the proportion of time periods the difference is higher or lower to compute the expectation of the higher and lower differences, respectively. The default volatility is the square root of the sum of the squared expectations.

$$\text{Default volatility} = \sqrt{e_h^2 + e_l^2}$$

$$e_h = p_s * d_h$$

$$e_l = (1 - p_s) * d_l$$

$$d_h = \text{average } d_s \text{ when } d_s > 0$$

$$d_l = \text{average } d_s \text{ when } d_s < 0$$

$$p_s = \text{proportion of time periods } d_s > 0$$

$$d_s = r_s - r$$

$$r_s = \text{segment default rate}$$

$$r = \text{index default value}$$

## About WAIN Street

WAIN Street empowers credit markets to better serve middle-market and small business enterprises. By harnessing data on nearly 30 million US businesses, the WAIN Street Business Credit Health Index™ (BCH Index) provides an aggregate view of credit health trends with the ability to drill-down to granular demographic segments. The BCH Index is a platform that enables consistent measurement of middle-market and small business credit portfolio quality. This facilitates coherent industry-wide communication around portfolio credit risk and unlocks new opportunities.

Middle-market and small businesses account for over \$1 trillion of aggregate credit exposure. The BCH Index and complementary WAIN Street services facilitate discovery, more effective management, and pricing of risks and opportunities that exist in this market. These capabilities create greater financing options for middle-market and small businesses, enhance liquidity for lenders, and promote financial innovation to stimulate entrepreneurship and new job creation in the US.

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