# Weathering Volatility 2.0

A Monthly Stress Test to Guide Savings

Executive Summary

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# Executive
# Summary

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In this report, the JPMorgan Chase Institute uses administrative bank account data to measure income and spending volatility and the minimum levels of cash buffer families need to weather adverse income and spending shocks.

Inconsistent or unpredictable swings in families' income and expenses make it difficult to plan spending, pay down debt, or determine how much to save. Managing these swings, or volatility, is increasingly acknowledged as an important component of American families' financial security. In prior JPMorgan Chase Institute (JPMCI) research, we have documented the high levels of income and expense volatility families experience. In this report, we make further progress toward understanding how volatility affects families and what levels of cash buffer they need to weather adverse income and spending shocks. We explore six key questions:

1. What is the trend of month-to-month income volatility between 2013 and 2018?

2. What is the distribution of income volatility and is it persistent from year to year?

3. What are the prevalence and magnitude of income spikes versus dips?

4. How does income volatility differ across demographic groups?

5. How does month-to-month spending volatility compare to income volatility, overall and across demographic groups?

6. What are the minimum levels of cash buffer that families need to weather adverse income and spending shocks?

# Data Asset

**SIX MILLION** ANONYMIZED FAMILIES

form a 75-month balanced panel (October 2012 to December 2018)

**Our unit of analysis is the primary account holder, which we refer to as a "family."**
**To be included in our sample, an account holder must have:**

**1**

At least **five transactions** (inflows or outflows) from a personal checking account in every month between October 2012 and December 2018.

This attempts to ensure the Chase account observed is the account holder's active bank account.

**2**

At least **$400 in average monthly total income** for every twelve-month rolling period.

This serves to filter for account holders whose income is likely landing at the Chase account observed.

**3**

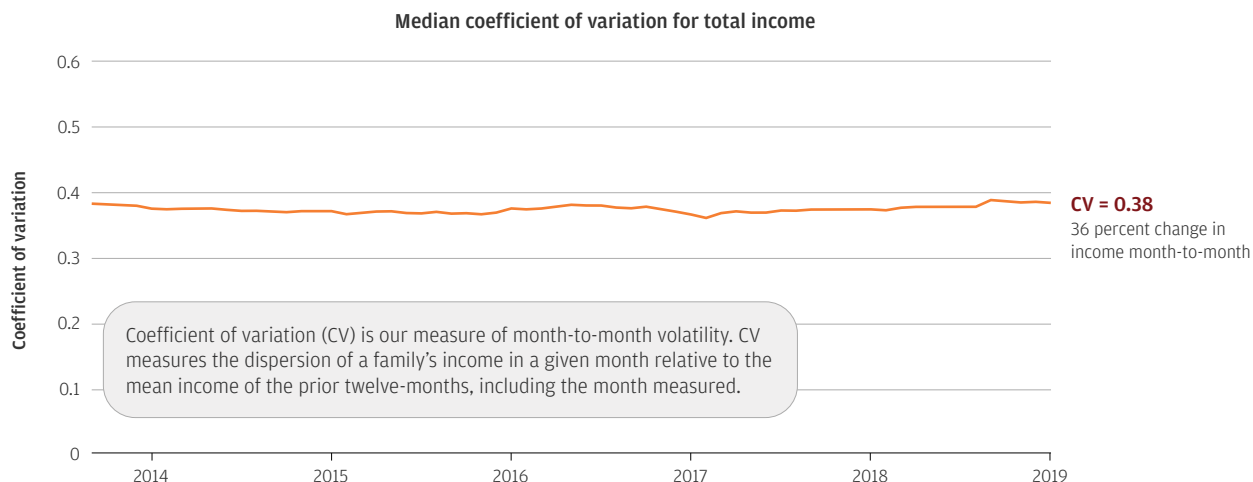At least **$10 in average spending**, and at least $1 spent every month.

This attempts to ensure we see spending activity for a given account.

Incomes we observe are take-home incomes, meaning after taxes and payroll deductions. Income categories we construct in our data set include labor income (i.e. payroll and other direct deposits) and non-labor income (i.e. government income, capital income, and otherwise).
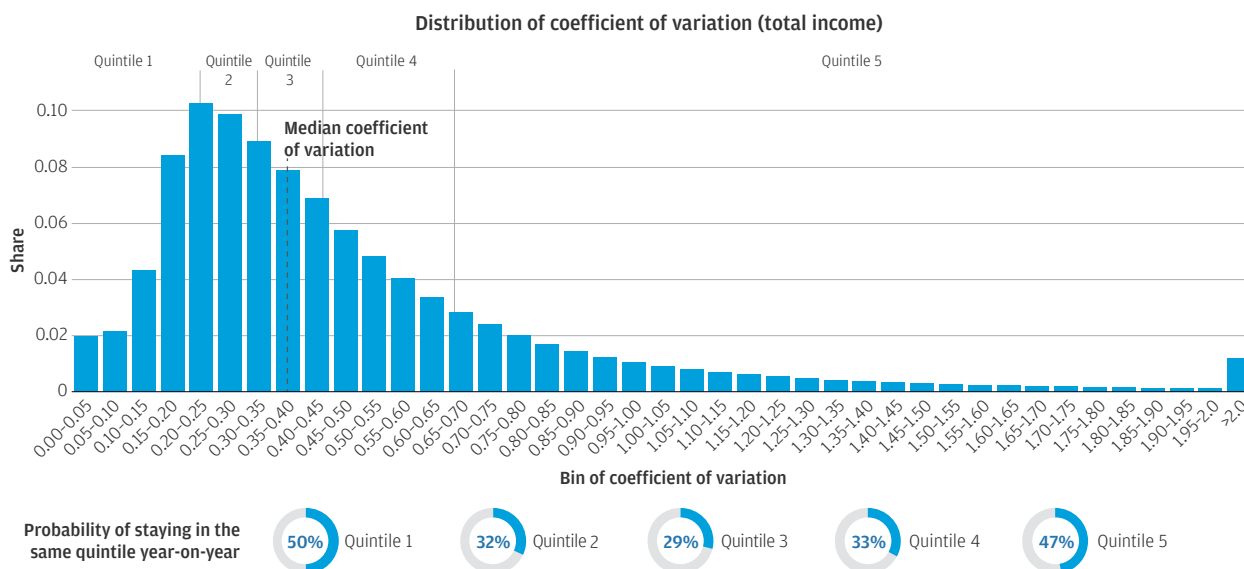
# Finding One

Income volatility remained relatively constant between 2013 and 2018. Those with the median level of volatility, on average, experienced a 36 percent change in income month-to-month during the prior year.

**Median coefficient of variation for total income**



**CV = 0.38**
36 percent change in income month-to-month

Coefficient of variation (CV) is our measure of month-to-month volatility. CV measures the dispersion of a family's income in a given month relative to the mean income of the prior twelve-months, including the month measured.

Source: JPMorgan Chase Institute

# Finding Two

There is wide variation in the levels of income volatility families experience, both across families at a given point in time and also for a given family across time.
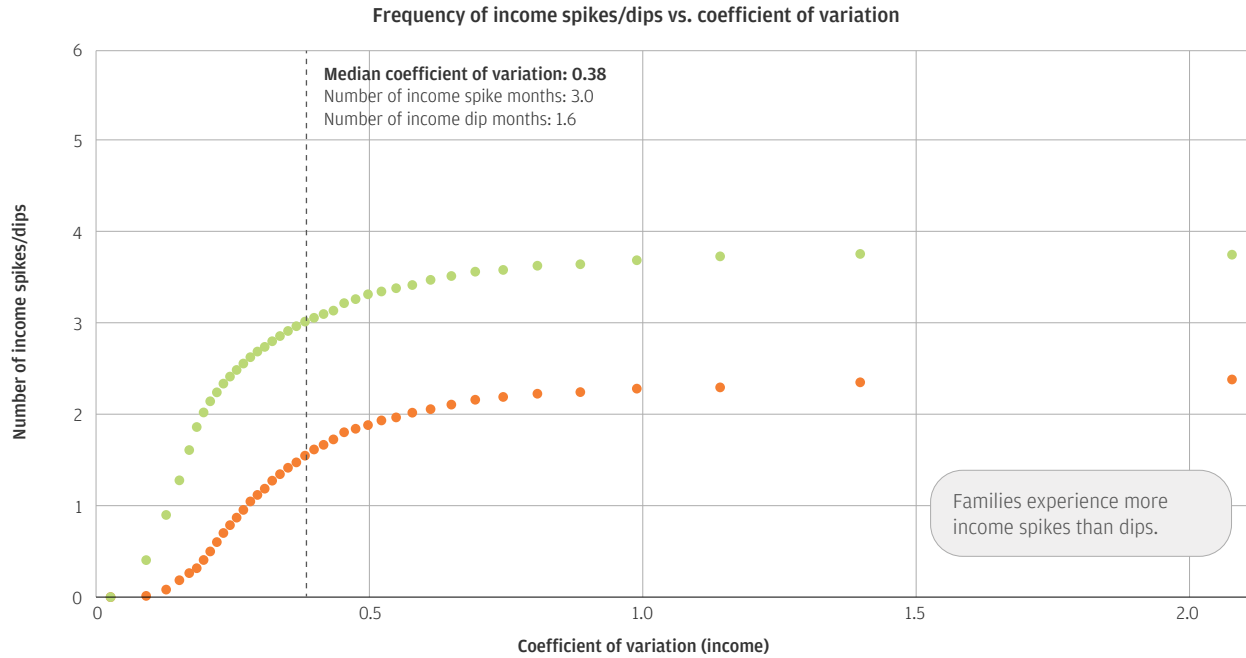
**Distribution of coefficient of variation (total income)**



Probability of staying in the same quintile year-on-year

50% Quintile 1    32% Quintile 2    29% Quintile 3    33% Quintile 4    47% Quintile 5

Note: These quintile cutoff points are computed for the year 2013.

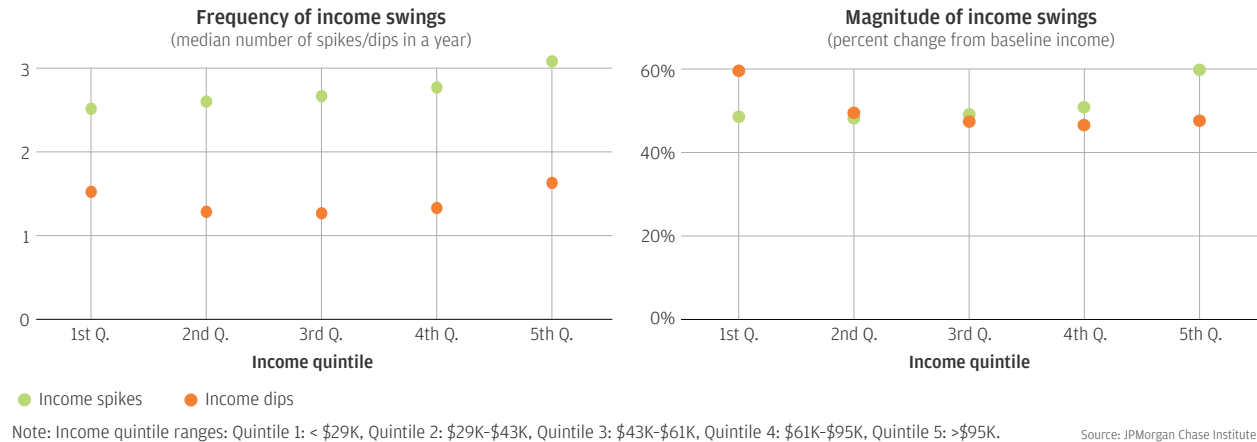Source: JPMorgan Chase Institute

# Finding Three

On average, families experience large income swings, in almost five months out of a year. Income spikes are twice as likely as income dips and most common in **March and December.** Families with the most volatile incomes experience swings that are larger but not more frequent than families with less volatile incomes.
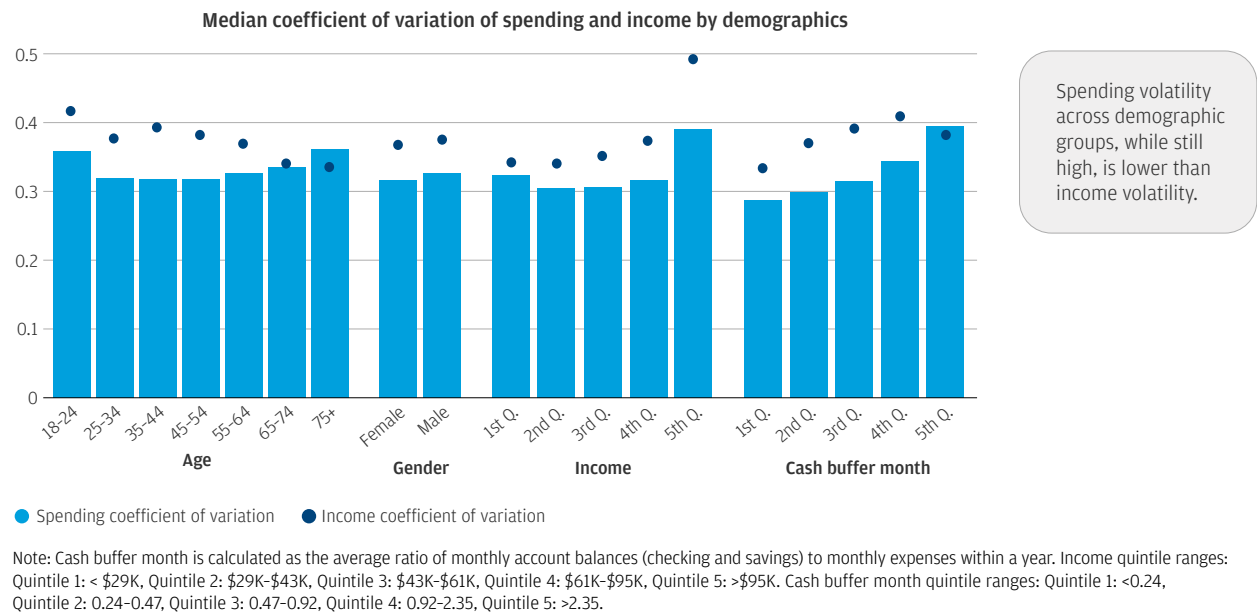
**Frequency of income spikes/dips vs. coefficient of variation**



**Median coefficient of variation: 0.38**
Number of income spike months: 3.0
Number of income dip months: 1.6

Number of income spikes/dips

Coefficient of variation (income)

Families experience more income spikes than dips.

**Magnitude of income spikes/dips vs. coefficient of variation**
**(percent change from baseline income)**



**Median coefficient of variation: 0.38**
Magnitude of income spikes: 51%
Magnitude of income dips: 56%

Magnitude of income spikes/dips (percent change)

Coefficient of variation (income)

Families with more income volatility experience larger income swings.

● Income spikes   ● Income dips

# Finding Four

Income volatility is greatest amongst the young and the high income. However, downside risks, as measured by the magnitude and frequency of income dips, are greatest among low-income families.

**Frequency of income swings**
(median number of spikes/dips in a year)

**Magnitude of income swings**
(percent change from baseline income)



● Income spikes   ● Income dips

Note: Income quintile ranges: Quintile 1: < $29K, Quintile 2: $29K-$43K, Quintile 3: $43K-$61K, Quintile 4: $61K-$95K, Quintile 5: >$95K.

Source: JPMorgan Chase Institute

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# Finding Five

The trend of spending volatility was flat between 2013 and 2018. While the level of spending volatility was also high, it was 15 percent lower than that of income volatility, except among account holders over the age of 75 and those with the largest cash buffers.

**Median coefficient of variation of spending and income by demographics**



● Spending coefficient of variation   ● Income coefficient of variation

> Spending volatility across demographic groups, while still high, is lower than income volatility.

Note: Cash buffer month is calculated as the average ratio of monthly account balances (checking and savings) to monthly expenses within a year. Income quintile ranges: Quintile 1: < $29K, Quintile 2: $29K-$43K, Quintile 3: $43K-$61K, Quintile 4: $61K-$95K, Quintile 5: >$95K. Cash buffer month quintile ranges: Quintile 1: <0.24, Quintile 2: 0.24-0.47, Quintile 3: 0.47-0.92, Quintile 4: 0.92-2.35, Quintile 5: >2.35.

Source: JPMorgan Chase Institute

# Finding Six

Families need roughly six weeks of take-home income in liquid assets to weather a simultaneous income dip and expenditure spike. Sixty-five percent of families lack a sufficient cash buffer to do so.

| Event | Frequency | Magnitude of cash buffer needed to weather event (median weeks of income) | Proportion of families with insufficient cash buffer to weather event |
|---|---|---|---|
| Simultaneous income dip & expenditure spike | Once every 5.5 years | 6.2 weeks | 65 percent |
| Income dip | Once every 9 months | 2.8 weeks | 48 percent |
| Expenditure spike | Once every 4 months | 2.6 weeks | 46 percent |

Our findings have important implications for designing savings strategies to improve families' financial health and resilience. They suggest that the tools currently available to help families weather volatile income and spending could be better tailored to an individual's cash flows. Simply saving a certain percentage of monthly income may leave a family with an inadequate cash buffer, exacerbating financial distress in cash flow negative months and resulting in under-saving during cash flow positive months. Instead, families may need to more aggressively harvest savings opportunities during income spike months. We provide empirical guidance for families, financial health advocates, financial advisors, and policymakers on the minimum levels of cash buffer families need to weather adverse shocks. Given the key role stability plays in the health of families' financial life, it is critical that we continue to gauge how income and spending volatility are changing for American families and the implications for families' financial health.

## Acknowledgments

## Suggested Citation

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