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WHITE PAPER

Not From Concentrate:

Portfolio Diversification with Loan Participations

September 2022

"Diversification is an established tenet of conservative investment."
-Benjamin Graham

Introduction

A diverse loan portfolio is key to an effective risk mitigation strategy. By reducing concentration within the portfolio, credit union managers can ensure their institutions are not overly exposed to risk in their home markets. There are many strategies that can accomplish this goal, but buying and selling loan participations is ultimately the most efficient method available. Credit unions that sell loan participations can rapidly reduce concentrations within their existing portfolio, while those that buy participations can quickly reduce asset correlation and mitigate market volatility. Let's step through some of the benefits that diversification can provide to a credit union as well as the role that participations can play in delivering that diversification.

The More, the Merrier

Diversification begins with increasing the number of assets. Common sense says that having exposure to a limited number of assets increases your exposure to idiosyncratic events. However, let's illustrate with some numbers the benefit of holding a larger number of assets in one's portfolio. Imagine an asset purchased at 50 that in one year will return you either 0 with a 50% probability or 110 with a 50% probability. The expected return for this asset is 55, (50% * 0 + 50% * 110), for a 10% return. However, if you had only one loan like this, you would only experience one outcome: Either you would receive 0 for a -100% return or 110 for a 120% return. While the expected return is 10%, there's a large degree of variation around that figure. The usual measure of that variation is the standard deviation, and for this asset, it would be 110%.

If we were to increase the number of assets to two (with the same return probabilities as above), we now have four possible outcomes: both assets default (25% chance with a -100% return), both assets perform (25% chance with a 120% return), and one asset performs while the other defaults (50% chance as there are two ways for this to happen, with a 10% return). Here, the standard deviation declines to roughly 78%. Continuing to increase the number of assets results in lower and lower standard deviations and a lower likelihood of extreme events.

Graphically, the return distributions look like this as we quadruple the number of assets in each step. (The standard deviation is proportional to the square root of the number of assets, so quadrupling it for each step halves the standard deviation.)

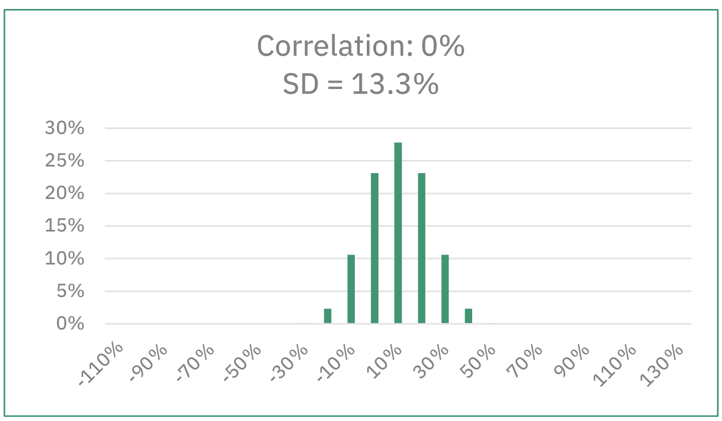
Increasing the number of loans continues to tighten the distribution and reduce the standard deviation, and the improvements become less and less; if it were possible to have an infinite number of assets, the standard deviation goes to 0.

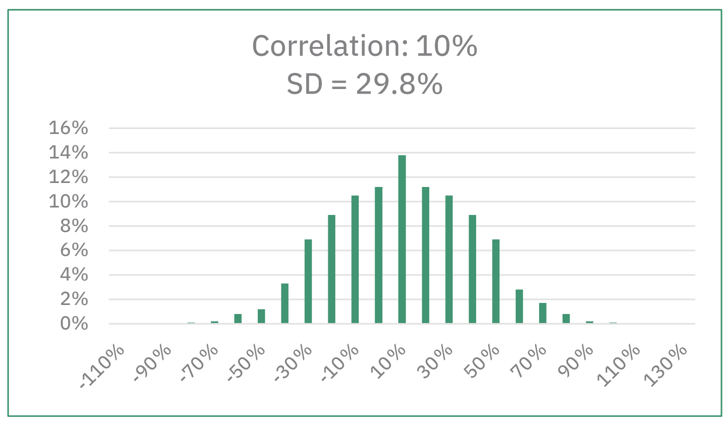
There is an important caveat to this analysis though: it requires that all assets are independent, i.e., that their behavior is uncorrelated – a requirement that is unlikely to happen in the real world.

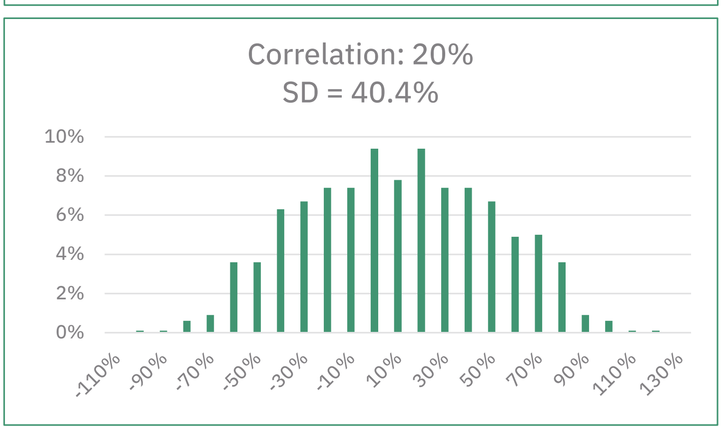
Correlation: When Bad Things Happen in Threes

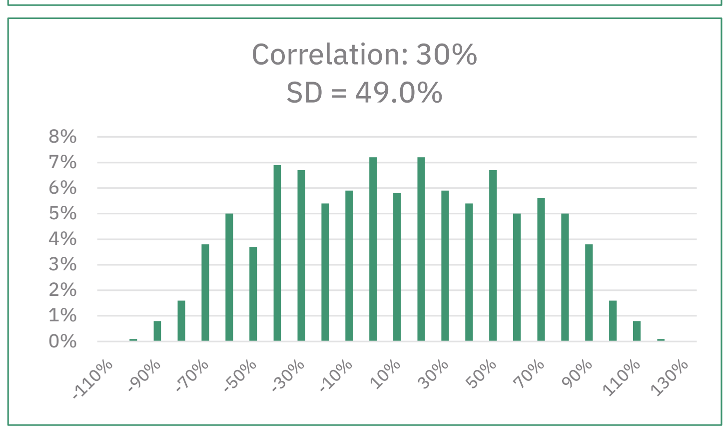
Correlation is the likelihood that two events occur (or don't) together. Diversification should have the goal of reducing correlation between assets. Ideally, selection of an asset that is negatively correlated with one or more of the other assets should be sought, but, aside from short positions, either directly or via derivative, on the asset or something highly correlated, negatively correlated assets are few and far between in financial assets (gold being one of the few). Instead, a credit union must focus on reducing correlation by limiting concentrations that increase correlation.

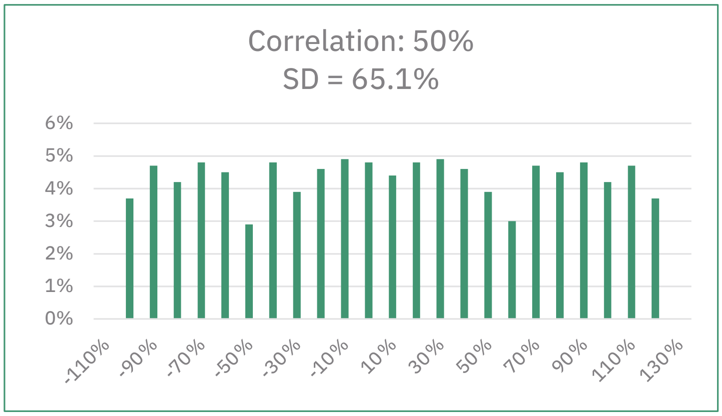
The measure of the degree of correlation is the correlation coefficient, often designated by the Greek letter ρ (rho), and it can range from 1 and -1, where 1 is perfectly positively correlated (i.e., if event 1 happens, event 2 will certainly happen), -1 is perfectly negatively correlated (i.e., if event 1 happens, event 2 will certainly not happen), and 0 is uncorrelated (i.e., event 1 happening has no impact on event 2 happening). High correlations effectively offset the benefits of increasing the number of assets; if all the assets were perfectly correlated, it's as if we still only had a single asset. The following graphs show the impact of increasing correlation between each pair of assets for the 64-loan example from above.

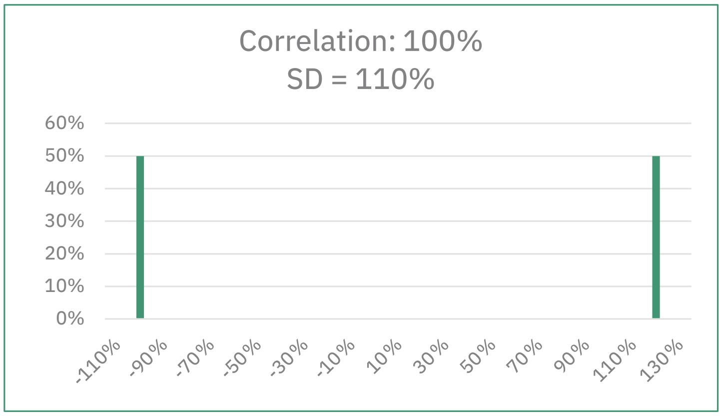












Correlation arises in a credit union's assets due to many factors, including:

- Asset Concentration – underlying asset prices, such as homes or autos, tend to move together, affecting their performance
- Geographic concentration – field of membership limitations may result in high concentrations of loans in small geographic areas creating exposure to natural disasters and slowdowns in the local economy
- Industry Concentration - field of membership limitations may result in high concentrations of loans to a single company or industry, creating exposure to industry- or company-specific downturns
- National Economy – slowdowns in the economy can negatively impact loan performance
- Global Economy – like above, but on a global scale

Some of these factors may be synergistic as well. A credit union with a field of membership that is a single company with a single location and a high exposure to mortgages would likely experience a dramatic increase in bad loans should that company fall on hard times as the ripples expand beyond that company to the local economy (and ultimately to housing as people move to find jobs elsewhere).

Of the factors previously listed, the latter two are difficult, if not impossible, to diversify away and represent a baseline correlation that will exist in any asset portfolio. But after that, diversification becomes much more attainable, especially if you have access to loans that might be available in the secondary market.

Conclusion - Participations to the Rescue

While a credit union can attempt to address diversification issues by changing and broadening their underwriting, this strategy can be slow to implement, is limited by the amount of cash available to lend, and has no guarantee of success. By contrast, to reduce asset correlation and mitigate performance volatility, loan participations present an easy way to allow a selling credit union to rapidly reduce concentrations within their existing portfolio and a buying credit union to quickly add diversity to theirs. A buyer can not only materially increase the number of loans owned, but adding participations can also help improve other measures of portfolio diversity. For credit unions that are low on available cash, selling participations first will raise the cash needed to buy participations and help to reduce their exposure to their existing portfolio.

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About LoanStreet

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Get in touch to learn more about our platform. With over 1,300 financial institutions registered, we are ready to help you build a more efficient lending model.

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