MASECO PRIVATE WEALTH

the tortoise & the hare

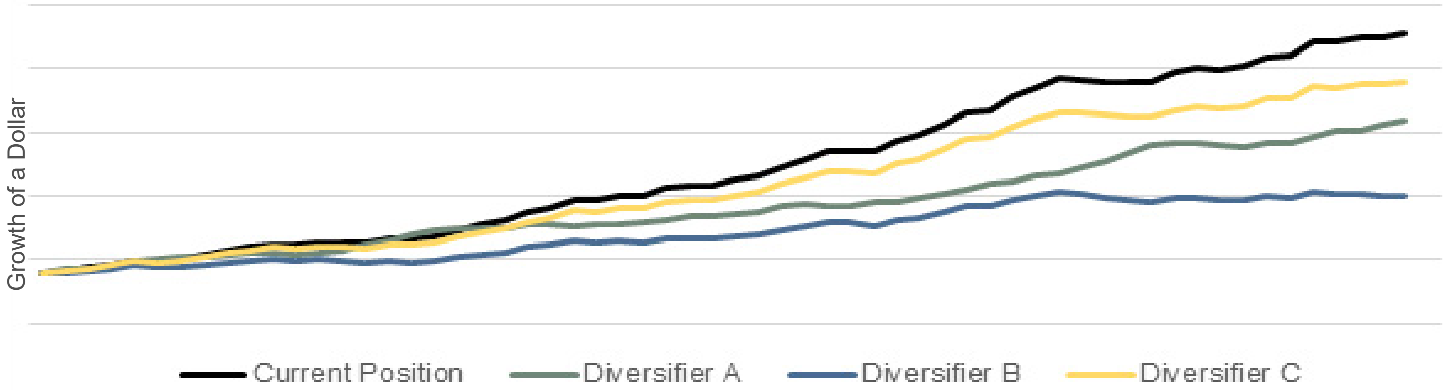
Diversify, diversify, diversify

Similar to how critical 'location' is to the value of a property in the real estate world, leading to statements such as "location, location, location", 'diversification' is critical for successful investing. As it is so important, it is no surprise that it features in nearly every piece of investment marketing literature. But can you answer a simple question: "How does diversification work?"

Over a series of related educational articles, I want to help all readers to appreciate what diversification is and is not and the different dimensions of diversification. This first article is covering the basics. But before you stop reading because you believe you already know all about it, have a look at the following graph and answer the following question for yourself; "Which of the three diversifying assets, A, B or C, would you pick to add to a current position to create a 50/50 combination with reduced risk?"

Many people would pick asset B because its line looks the most different to the current position. Some people might choose asset C because its line ends at the highest point compared to the other two alternatives. The right answer is represented by the green line (asset A) because it has the lowest correlation and slightly lower risk.

Correlation is the closest relative of diversification. It is a statistic that measures the degree to which two or more measurements (like investment returns) show a tendency to vary together. A correlation coefficient can have a value between 1 and -1. At 1, the investment returns are always both above or below their respective averages at the same time, at -1, one is always above at the same time as the other is below its average. The lower the correlation, the higher the diversification. Look at the chart below again. Can you now see that the variations of the yellow and the blue line appear more in sync with the black line? Asset B and C are perfectly correlated to the current position. Asset A on the other hand has a slight negative correlation.



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Let's now look at a couple of examples.

	Equity 1	Equity 2	Portfolio
Volatility	15%	15%	15.00%
Weight	50%	50%	
Correlation	1		

If you combine two assets with equal risk (volatility) that have a correlation of 1, the portfolio has the same risk as both assets. So, there is no risk reduction. This changes dramatically if the assumed correlation drops to 0:

	Equity 1	Equity 2	Portfolio
Volatility	15%	15%	10.61%
Weight	50%	50%	
Correlation	0		

Now portfolio risk has dropped to 10.61% from 15%, a reduction of nearly 30 percent. Can one do better? As shown in the following table, we could mix equities with bonds.

	Equity 1	Bond	Portfolio
Volatility	15%	3%	7.65%
Weight	50%	50%	
Correlation	0		

At 7.65%, portfolio risk has nearly halved. Aren't low correlations amazing? Not only that but bonds also have a much lower risk than equities. In our stylized example, bonds only have 20% of the volatility that equities exhibit. Can we isolate the correlation effect from the effect of mixing two assets with very different volatility levels? The answer is that we can, by assuming a correlation of 1 between them:

	Equity 1	Bond	Portfolio
Volatility	15%	3%	9%
Weight	50%	50%	
Correlation	1		

In this example portfolio volatility is still 40% lower. From this we can conclude that the low correlation delivered the additional 10% from the 50% volatility reduction we saw in the previous example.

Below we provide an update of historical asset class correlations MASECO Private Wealth pursues for its clients*.

As is widely known and evident in the table in section 1, bonds are the most important diversifier to equities as those asset classes exhibit negative correlations over the long term. While all asset classes in the table have some degree of diversification benefit, styles within one equity region (Section 2) have the least diversification benefit. This is followed by regional diversification within equities (Section 3). We can also see that REITs and Commodities historically proved to be good diversifiers for an equity portfolio (Section 4). However, Managed Futures (Section 5) beat all other asset classes, apart from bonds, as far as diversification benefit is concerned.

In summary, different volatility levels and pairwise correlations of multiple assets always come as a package, technically referred to as covariance. They are the drivers of diversification and risk reduction. I hope my examples have shown you that sometimes correlation is the driving force in achieving significant risk reduction and sometimes it is a difference in volatility levels. However, it is only the correlation term that causes the famous efficient frontier to have a bended shape, with portfolio risk to be lower than one would expect from combining multiple assets or asset classes. While unfortunately both variables change over time, therefore attaching a degree of uncertainty, understanding them as well as possible is a very valuable exercise for any investor.

*

Asset Class	Global Bonds Hedged	US Equities	US Value Equities	US Small Equities	Ex-US Equities	EM Equities	US REITs	Commodities	Managed Futures	
Global Bonds Hedged	1.00									
US Large Equities	-0.38	1.00		2						
US Large Value Equities	-0.32	0.97	1.00							
US Small Equities	-0.40	0.91	0.86	1.00						
Ex-US Equities	-0.28	0.88	0.86	0.82	1.00		3			
Emerging Markets Equities	-0.23	0.78	0.74	0.74	0.88	1.00				
US Real Estate	-0.08	0.65	0.65	0.70	0.62	0.55	1.00	4		
Commodities	-0.13	0.38	0.37	0.38	0.53	0.57	0.26	1.00		
Managed Futures	0.33	-0.10	-0.09	-0.09	-0.04	0.00	-0.04	0.11	1.00	5
	1									

Source: Morningstar. Data as at: 08 May 2018