



A HISTORY OF GROUND-BREAKING RESEARCH AND INVESTMENT: DENALI ADVISORS & MSCI

Denali Advisors, LLC is a quantitative-based, institutional investment management firm, and the largest Native American-owned asset management firm in the United States. Specializing in US value equities, Denali currently serves institutional public, corporate and foundation clients. Denali is majority employee-owned with a mission to consistently deliver enhanced value for clients, investors, and employees by producing superior risk-adjusted investment returns while adhering to their core values.

Denali's Approach to Supporting their Clients' Unique Investment Strategies

Denali employs a quantitative strategy to model investor behavior and capture opportunities in the marketplace. They use a proprietary forecast model to identify undervalued and overvalued securities, and also use a fundamental approach to manage portfolio risk. Using dynamic factors to capture dominant investor themes (favoring growth stocks, deep value firms, energy sector, etc.) their approach focuses on identifying and participating in these themes early in their life cycle as well as when the themes become irrelevant.

Bob Snigaroff, President and Chief Investment Officer at Denali and Mike Munson, CFA and Vice President of Portfolio Management, explain what clients like about their firm. "We have generated an attractive model that has gained attractive returns, and we're still small enough to have low trading costs. We are quick and nimble – and we deliver."

Mike said, "We use quantitative models to rank stocks and use Barra products to rebalance the portfolios once we've generated our forecasts. We have around 20-25 different accounts, and many of those have custom

guidelines or benchmarks so we generate a different portfolio for each client based on that client's specifications."

Barra Optimization and Backtesting: Supporting Informed Decision Making

The Denali team recalls what it was like using non-Barra products and made sure they had Barra products upon founding their company in 2001. "Prior to using Barra Aegis, we used an optimization program that was not commercially available and had problems with managing the turnover. What we liked about Barra Aegis and Barra Optimizer was the ability to manage the turnover in the optimization."

Barra Aegis is an integrated suite of equity investment analysis modules, designed to help clients manage their equity risk against expected returns. It also enables clients to construct optimized portfolios.

Mike said, "For more than ten years we've been using Barra for backtesting strategies. Our primary focus was US only for most accounts, but in April of this year we moved into international and global portfolios. We recently started trading long/short Japan in our hedge fund. Collectively we're managing USD 600 million in assets."

Barra Aegis gives Denali the ability to optimize a bunch of portfolios rapidly. Mike added, "When you're a smaller firm, you can have problems with operational capabilities and we need to rely on the data. The whole system works for us. "We can effectively rank and buy more attractive securities, and can find trends in the marketplace. Those trends have persisted and have continued in the years since we've started. The Barra data is robust and

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Mike Munson
CFA and Vice President
Denali Advisors



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Choosing Barra: Reliable, Efficient and Innovative Products That You Can Count On

Bob explained that Denali looked at other providers over the past ten years, but preferred Barra.

"We've looked at well known competitors of Barra's and find that Barra Aegis has the most robust system that is operationally efficient to use. That's where we found problems with other providers. They just weren't efficient. MSCI offers a state of the art system that we can count on."

High Quality Barra Data & Looking to the Future

Bob said, "We get excellent data from Barra. Barra Portfolio Manager is a web-based application and so gives users the ability to gain additional portfolio insight, on one integrated platform. We are comfortable with that and like the idea that we'll get our data

using the new Barra Portfolio Manager system. We think that what it can do for us is very attractive."

Making an Impact: Combining Quant & Fundamental Approaches to Investment

Denali uses both quant and fundamental approaches to investment help determine which stocks to buy or sell and that using both can provide more consistent results. Mike said, "Quant managers are spending more time per name and can select a long list of attractive names, and diversify that risk – and can help them be more consistent. Barra products are easy to use and this has been helpful to us as we can train new employees, and they can be up and running quickly."

David Wroblewski, PhD, Research Analyst at Denali is responsible for researching market models and exploring new quantitative factors for use in Denali's investment process. David has been using the Barra products for many years and said, "From a mathematician's point of view, Barra does something very valuable. They create an

approximation to a basis for the return space, with their risk factors. Armed with this basis one can characterize future returns by these Barra factors. Inevitably when using this dimension reducing basis as a tool to proxy for the return space it forces one to view the world through Barra goggles. We now see things relative to this Barra basis and fortunately for our clients these goggles are a very good pair to look through."

An Established History of Prominent Research: Denali and Barra Research

Barra and Denali share the view that well established research is essential for any successful business and share a common influence from a well-respected member of the quantitative investment community. Harry Markowitz, American Economist and Nobel Memorial Prize winner is best known for his pioneering work in Modern Portfolio Theory. His work influenced the research done at Barra (acquired by MSCI in 2004). Also, Bob and David collaborated in publishing a paper with Harry Markowitz that appeared in the Journal of Investment Management (2011). This paper, *The Supply and Demand of Alpha*, was part of a broader set of ideas which are the basis for future innovation and research at Denali.

Bob and David further expounded on this research and their other previous works to produce a series of papers that focus on network value. Network value is the value of the stock market that arises from its function as a provider of liquidity and production of information. They also devised ways in which to measure this production. By considering the stock market as a network that impounds liquidity and information production, the Denali team was able to study its influence

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Bob Snigaroff
President
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on aggregate stock value and value from dividends. In their paper, *A Network Value Theory of a Market, and Puzzles (2011)*, they offer that a network value model can price this value and help solve financial economic puzzles such as the equity premium, stock's inverse inflation relationship, and lack of news.

Bob said of their groundbreaking research, "We look at aggregate stock values and build an additional component into a stock's value that we think is missing. That component is the present value of the changes in the value of liquidity provision, information production and market sentiment; that is how well the market functions in its role in providing these and the confidence investor's have in its function. We call that the 'stock's network value' and we abstract the value in the time series for this network value for a 100 year time span. We find that it really adds a material improvement in fitting actual stock prices. The dividend discount model, we think, is missing this critical piece. The reason stocks have had such a nice return over the past 50 years is largely due to the growth in stock's price from the network value. It's a material part of the stock's price.

What is the Story You Tell Your Clients About Denali?

Denali works to identify investor themes, as they want to own the themes early enough so that the portfolios positively benefit. Bob said, "We also now build a cross-sectional model of this network value to use as a reference portfolio to optimize to, in lieu of using client benchmarks directly. We believe that we can add value by this provision of liquidity in addition to our characteristics trend model."

"We look at both the investor themes in the market and add our network value approach where we take into account liquidity measures to uncover a missing piece of the asset's price."

"A lot of firms miss this. Quant firms try to get at the market's value through sentiment, and fundamental shops don't even believe network value exists – we explicitly add that component – and that is a material competitive advantage for our firm."

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