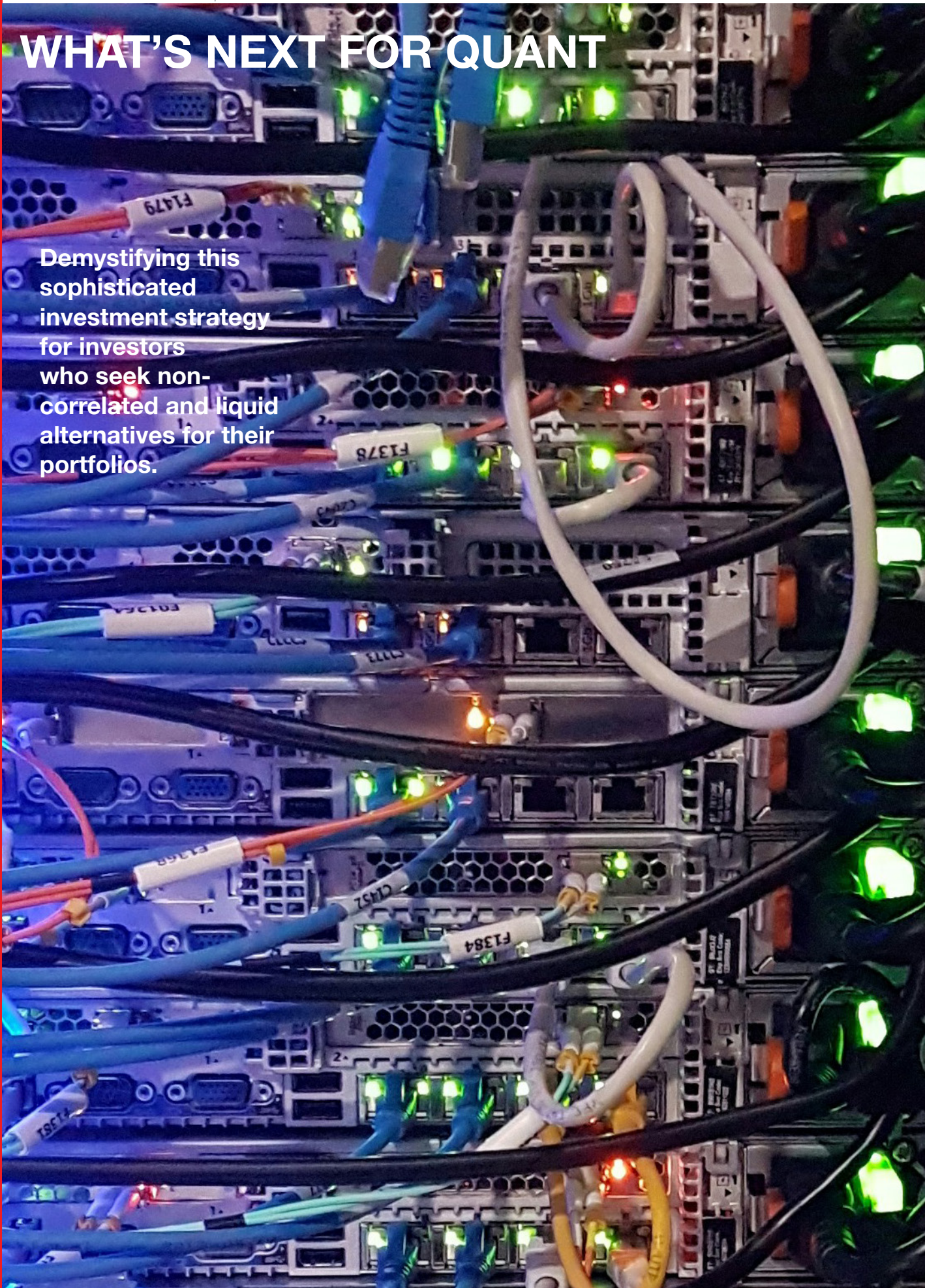**CANADIAN ASSOCIATION OF ALTERNATIVE STRATEGIES & ASSETS**

WHAT'S NEXT FOR QUANT

Demystifying this sophisticated investment strategy for investors who seek non-correlated and liquid alternatives for their portfolios.

About CAASA & This Paper

Inclusive, Active, and Pan-Alternative

The Canadian Association of Alternative Strategies & Assets (CAASA) was created in response to industry requests for a national group to represent the Canadian alternative investment participants, including investors, asset managers, and service providers. CAASA is inclusive in that it welcomes participation from all companies active in the space (400+ members in 2024) who might want to participate in committees and working groups — or simply attend member events — without their employer being a member of the association.

CAASA is very active, organizing numerous conferences, webinars, socials, and podcasts throughout the year. Pan-alternative, for CAASA, encompasses all alternative strategies and assets including hedge funds/alternative trading strategies, private and public real estate (funds and direct), private lending, private equity, infrastructure, development and project finance, digital assets/crypto-assets, weather derivatives and cat bonds, and all aspects of diligence, trading, structuring, dealing, and monitoring alternatives in a stand-alone portfolio and as part of a larger investment strategy.

As with all our papers, we use an external writer to draft it from interviews with participating members and it represents, in the end, our views and not necessarily that of every participating member.

For more information, please visit www.caasa.ca.

Introduction

Finance, like most industries, has its jargon - full of meaning to financial professionals, impenetrable to those outside. Think about the shorthand the industry uses: for measuring an asset's return or risk, you might have alpha or beta, a position can be short or long, an option might be a call or a put.

But even for finance, quant funds can feel difficult to approach. While investors have always tried to take advantage of mispricing, quant fund managers claim to be able to identify and profit from them at scale. While investors have always tried to identify and take advantage of market trends, quant fund managers claim to be able to identify them, and profit from them, faster than their competitors.

The secret is in their algorithms - designed with care, tested carefully, then put to work - and in their systematic approach to markets. But do quant fund managers truly do something totally different from discretionary fund managers? Or do they simply do what discretionary fund managers are also doing - but in a more systematic, rigorous and rules-based way?

The quant value proposition

To answer this question, it's useful to review exactly what a quant fund is. A quant fund is also called a systematic fund - it approaches investment in a systematic way with much human decision-making removed from the process. This is in contrast to a discretionary investment approach where humans make investment decisions based on their investment thesis and objectives.

That is not to say that human decision-making is entirely removed from the process. Humans still build the algorithms, test them, and test their performance against historical data. And they still set the quant fund's objectives and investment strategy.

And it's not to say that quant funds pursue different investment strategies from discretionary funds. For example, long-short equity strategies date back to the very first hedge funds, in the 1950s, and there are both quantitative and discretionary funds that pursue long-short equity strategies today. There are discretionary and quantitative funds that pursue trend following strategies. There are even quant funds that pursue very simple long-only equity strategies: index funds, which many retail investors have in their portfolio, follow a very simple algorithm to ensure that their value, and their underlying assets, track a given index.

Further, quant funds are not unique in their use of data or statistical analysis. Discretionary funds also use statistical analysis to inform their investment decisions.

If quant funds often pursue similar investment strategies to discretionary funds, when why allocate to a quant fund?

Two reasons: scale and rigor

Scale: A human being, aided by computers, statistical models and large data-sets, may be able to make very robust, evidence-based decisions. They may make those decisions based on the best available data, giving investors confidence that their decisions are not arbitrary, but founded in a solid investment thesis.

But a human being is still human, and still limited by human capacity to process information. The number of data sources will be limited, and the number of bets in a discretionary fund, limited as well.

A human being is also limited by human cognitive biases. A human manager may be more likely to focus on well-known sources of value and return: for a developed markets fund, it may not trade beyond the G7; for an emerging markets fund, it might focus on a single country; for a commodities fund, it might focus on one or two commodities, instead of trading across the breadth of the market.

Quant funds can take the same principles behind discretionary funds, and apply them at scale. They are only limited by the amount of computing power a fund decides to dedicate to them. They can take in a vastly greater amount of information, they are as able to spot opportunities in Belgium or Spain as in the UK or United States, and they are able to look at opportunities totally objectively, within the design of their rule-set.

As such, you can expect a quant fund to be more diversified than a discretionary fund. As opposed to a small number of bets that can be comfortably understood by a human being, a quant fund could have hundreds of bets. These bets could be spread across the whole spectrum of opportunities considered within the fund's strategy, whether it's developed or emerging market equities, or commodities.

"I think the job of the asset allocator is to have the benefit of both [discretionary and quantitative], and to have the best portfolio.

For example, if you think about the global macro strategy, if you have only discretionary Managers, you know that you might end up having a portfolio that is usually more Fixed income and FX biased. If it is an emerging market global macro, he might focus on a region (Latam, Asia etc) or one asset class (Fixed income/FX, Equities, Credit). But if you think about the systematic approach, you can apply the same lessons that the manager learned, but in a systematic way that will flag all the opportunities everywhere. And so from a diversification perspective, you always expect a systematic strategy to be more diversified. That's one of the things that systematic strategy can do is trade many markets, and look at different things at the same time."

Wassim Sakka
Senior Vice President
Wilshire
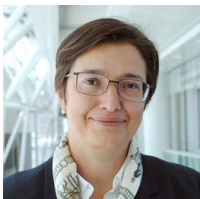
"So typically, in a discretionary strategy, you tend to have fewer views, fewer bets. You can be a lot more directional. And usually you have a few strategies, because it's difficult to follow that many and it's difficult to deploy all these ideas across instruments. You may have a view on the yen or on the dollar or on oil and gas, but what truly makes the difference when you talk about quant strategies is the ability to develop systematic ideas and to industrialize them, and then to apply across a vast number of assets. So, in quantitative equity, typically you develop factors - could be value, momentum, could be profitability. And then, systematically, you put bets on across thousands and thousands of stocks in global macro or equity strategies."

Dr. Anne-Sophie van Royen
Chief Investment Officer, Quantitative Strategies
Asset Management One USA

Rigor: Every investment fund has a set of rules, or principles, that guide its investment decisions. An emerging markets fund is not going to allocate to blue chip equities from the United States, and a long-only equity fund will not take a short position. The factor that distinguishes quant funds from discretionary funds is not the use of rules themselves, but the rigor with which they are applied.

Quant funds are also called systematic funds, because rules are applied automatically and systematically: if markets meet conditions X and Y, the fund will automatically take action Z, without need for human intervention or input.

There are advantages to this approach. First, it helps to take the emotion out of investment decisions. Human being are human beings, risk is stressful, and a lot of money rides on investment choices - mistakes are bound to happen. Humans - even experts - can also be overconfident in their predictions. Quant funds simply apply a pre-determined set of rules, taking emotional decision-making out of the process.

Having a pre-determined set of rules also confers an additional advantage: being able to run simulations. Having constructed an algorithm, a quant fund manager can feed the algorithm historical market data, to measure how a fund might have performed against a given benchmark in the past. The same technique can be used to identify how a fund might perform in the future, under various market scenarios, or during black swan events like COVID-19 or the Great Financial Crisis.

That final piece is a critical one. Although quant funds were known to investors prior to 2008, they only came into their own during the Great Financial Crisis, when quant funds overperformed their peers during a period of losses across the board. Planning for so-called black swan events is a necessary part of many investors' risk management approaches.

"I was reading a study on the value of expertise. Out of a pool of 180 experts, not one demonstrated an ability to forecast with an accuracy rate above 50%. They were also, in aggregate, not very well calibrated. They were systematically quite a bit overconfident.

And alongside asking these questions to humans, they also ran these simple algorithms for each of these questions. And they observed that these simple algorithms were both considerably better than any individual forecaster and better than the aggregation of all the forecasters, and delivered actually reliable results that could be quantifiably calibrated when it made a forecast. You knew exactly how confident the model was in its forecast, because that's built into the way the models are constructed.

If you dig into the literature on financial forecasting, specifically, we observe exactly the same thing."

Adam Butler
Chief Investment Officer
ReSolve Asset Management

With all of that understood, can there still be an advantage to a human manager? In a word: yes.

First of all, some quant funds have limitations as to the types of investments they can make. Funds who need to buy and sell frequently - for example, funds whose value proposition is to extract alpha from mispricing - will only be able to invest in very liquid assets. This is fine when investing on the public markets, but when it comes to investments that are less liquid – like real estate, or structured credit - quant loses its edge.

A quant fund's strength is its ability to make decisions based on the data that is provided to its model. But that's also its weakness: it is only able to consider the data that it is fed. Human managers take large amounts of relevant data into consideration as well, but they also take in a considerable amount of information while living their lives.

Some of this information can influence an investment's valuation. Consider, for example, the shock result of the Brexit referendum, or of the 2016 US presidential election - both of which had significant impacts on equity and currency markets. Or consider the war in Ukraine, which roiled energy markets.

Human managers can intuitively understand the likely consequences of large shocks or political events. Quant funds can also take these events into account in their models, but only when they receive data on their effects, which means they

can be behind market movements during truly surprising events, leaving return on the table.

There are efforts to allow quant funds to take this sort of sentiment into account and derive trends from news. For example, so-called Large Language Models (LLMs) can determine the sentiment of online and media conversation, and include it as a datapoint for the quant fund's algorithm to consider alongside more traditional indicators that give a fuller picture of a given country's economy.

If successful, this would allow quant funds to identify the risks behind crises like the Ukraine War or COVID-19 in a similar way to a human manager.

But like AI and LLMs themselves, these efforts are in their infancy, with some quant funds looking at LLMs not as ways to generate data for their models, but rather as a way to improve the efficiency of their human workers by allowing them to summarize large documents, similar to the way an human resources department or law firm might use them.

As quant funds and discretionary funds have distinct value propositions, a truly diversified portfolio will have allocations to both.

True non-correlation

While every alternative investment has its own distinct value proposition, they all have one in common: they are a source of value that is not correlated to the public markets, allowing for an investor to truly diversify their portfolio.

The extent of an asset's non-correlation, however, is something that varies from asset class to asset class. Private equity and private credit investments do provide a source of uncorrelated return, but this lack of correlation may be because of infrequent mark-to-market (the practice of valuing assets based on their current market price rather than their historical cost or book value). Real estate investments provide a source of absolute return, but with many REITs traded on the public markets, they may not provide sufficient shelter from volatility either.

Quant funds are unique in that they can be either fully correlated, or fully uncorrelated, by design. The simplest quant fund is an index fund: a fund that rebalances in a systematic fashion according to the market capitalization of the stocks on a given index. Index funds have near-100% correlation to the public markets, on purpose, because that's what investors are looking for.

By contrast, a quant fund - even a long-only equity fund - can be designed to have zero correlation to the public markets. An investor allocating to a quant fund can therefore be assured of more precisely meeting their diversification goals.

"We run quant strategies that are, by design, on average, completely uncorrelated to any of the underlying markets that we trade. And they are like that by design, because when we generate the models that forecast returns, then we eliminate any of the historical drift that are in those underlying markets, and we're only looking for the returns of those markets that are not correlated to that long term underlying drift.

We do that because we know that people already have lots of exposure to those traditional types of investments, and what they really lack are genuine diversifiers that are diversified structurally, and that quant is one of the only areas of the market where you can, by design, achieve that structural diversification and expectation. There just aren't really any other styles of alternative investments that can claim that."

Adam Butler
Chief Investment Officer
ReSolve Asset Management

"Any investor should want to diversify their portfolio. One way to bring in better diversification is to invest in strategies that are more market neutral. And this can be framed either cross-sectionally, where at every point in time you are market neutral, or you can endeavor to achieve this market neutrality over a time series. That is, you want to be long some of the time, balanced by being short some of the time, especially if markets are in a bearish cycle. This concept of time-series market neutrality allows for strategies to achieve absolute returns and alpha over a market cycle – while producing returns that have low correlation to traditional assets. And, ultimately, if you are open to that idea, then you should consider quantitative strategies. First, these strategies pursue market neutrality through a well-defined process. While discretionary trading typically tends to be highly qualitative, a systematic investment, as a process, is not subject to human emotions. Quantitative strategies are based on well-tested theories and a thesis. They are evidence-based, providing high conviction through the entire investment process."

Thomas Feng
Chief Investment Officer
Graham Capital Management

Due diligence

"Invest in what you understand" is a truism for a reason: informed decisions are better decisions. A fundamentals investor should therefore invest in an industry that they understand, where they can fully appreciate the drivers of a firm's valuation How, then, should an investor approach allocating to quant? Quant funds have a reputation for being difficult to understand, and few investors will have the necessary expertise to truly understand the inner workings of the most complex quant models.

The principles for due diligence in quant are the same as the principles for due diligence with other alts: transparency and trust.

Transparency: Some quant funds keep their algorithms secret. These so-called 'black boxes' may deliver returns, but investors looking at allocating to them should be concerned. The amount of risk a quant fund will expose an investor to is entirely dependent on the fund's algorithm and its inner workings. A lack of transparency means an investor cannot properly assess risk. A quant fund that is open about the inner workings of their model, by contrast, is a welcome sign. Even if an investor does not possess the necessary expertise to assess the model in-house, they can consult a trusted expert.

Trust: No quant fund is a "set it and forget it" fund: their models are carefully devised over years, and their performance is carefully monitored. There are people at the helm of these funds, just like there are people at the helm of discretionary funds. An investor conducting due diligence of a quant fund may not understand the model itself. But they will understand an individual fund manager's experience, track record, and ability to explain the model's workings to a non-expert.

"So we look at the team background, the things that they've done in the past, the firms that they worked with. There are some firms in this space that tend to be better in terms of quant.

We look at the data that they use, whether it's more public data, if it is more alternative data that takes more time to clean and benefit from. We look at whether the edge is the data, or if the edge is understanding the data and being able to manipulate it or work with it. So, we look at it like that: the input, the team, and also the models that are used. Even though it's a systematic strategy, at the end of the day, humans make choices at some point in the process (data, models, back testing etc), and these choices matter."

**Wassim Sakka**
Senior Vice President
Wilshire
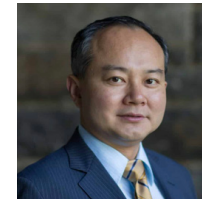
"There is a team of people behind all quant strategies. They are not basing their assessment on only one person, whether he or she makes the right decisions. It is a team and a process. By way of example, there is no key person risk in Graham's quantitative team: any one of us can leave and business can go on and the research process can continue. It is the investment and research process itself that you need to assess. And the key here is in the transparency and interpretability of a strategy. Even without understanding the finest technical specifics of a trading strategy, you can intuitively achieve a fair assessment of the reliability and repeatability of a manager's process."

Thomas Feng
Chief Investment Officer
Graham Capital Management

Conclusion

Quantitative funds ultimately fill a very similar function to discretionary funds: they take an investment thesis, build a fund around it, and attempt to deliver returns to investors in a way that fits that investor's objectives. The difference between a quant fund and a discretionary fund is not in what they do, but in how they do it: by following a set of rules in a rigorous and systematic way. This approach comes with positives, but it also comes with drawbacks. Ultimately, an investor taking a diversified approach would do well to allocate to both quantitative and discretionary funds, to ensure that they benefit from the best of both worlds.
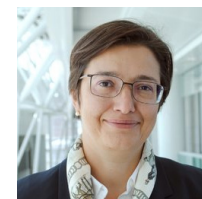
"Quant managers may benefit from having been exposed to market reality, not just being scientists in white coats. Because at the end of the day, we can test lots of different ideas, but we always need to know: why does it work? We need to have some intuition. Why is this idea, this particular anomaly, or this factor, working through the years? And for that, you need market intuition. You need some understanding of how the markets function, because economics and finance, at the end of the day, is a very different discipline than pure physics or pure mathematics.

And at the same time, discretionary managers, I believe, could benefit from testing ideas more regularly, because there's nothing that focuses like getting a better back test and also trying to question the hypotheses that that they're using.

It's where the middle meets that things get really interesting."

Dr. Anne-Sophie van Royen
Chief Investment Officer, Quantitative Strategies
Asset Management One USA

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