WHITE PAPER

LEADERSHIP DEVELOPMENT AND BEHAVIORAL FINANCE

September 2010

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EXECUTIVE SUMMARY

Part 1: Conventional Leadership Approaches are Not Really Effective

Current leadership approaches failed to prevent the economic crisis. They are based on dated systems which focus on interpersonal skills and largely ignore impact on business outcomes, defined in financial and valuation terms.

These leadership approaches have systemic flaws that prevent them from ever being fully effective in developing approaches that are useful for shareholders and investors, as opposed to employees.

Part 2: They Require Linkage to Business Outcomes

Classical economics and finance cannot meet this need because they are too simplistic in their approaches and assume that leaders are rational players.

Behavioral economics and finance open up a totally new approach to leadership. But the also they do not address some major issues in decision-making that are crucial for real-world application.

Part 3: The Perth Model Provides the Missing Link

This new and enhanced approach is a behavioral discipline that allows prediction of actual financial outcomes at the level of the specific individual, team or company.

This new model of financial outcomes allows us to identify and measure financial behaviors and link them directly to financial and valuation outcomes.

This leads to a new leadership synthesis of atomistic behavior, business outcome and leadership

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PART 1 CONVENTIONAL LEADERSHIP APPROACHES NOT REALLY EFFECTIVE

The Recent Economic Crisis Was Also a Leadership Crisis

We have just undergone a major economic crisis which has shown up in stark relief the lack of effectiveness of corporate leaders, mainly in the developed world. We are thus entitled to subject our models of leadership development for the corporate sector in the developed world into to critical review.

Some of the problems in leadership that emerge from this review include the following:

- The well-known high level of turnover of CEOs, particularly due to lack of effectiveness in maintaining the level of returns required by shareholders
- Similar turnover down the line for a variety of causes, but also linked to lack of effectiveness at achieving required earnings and corporate market value metrics
- The lack of effectiveness by so many leaders when confronted with environments that change rapidly
- The high proportion of CEOs who followed the crowd in taking undue financial risks with their shareholders' money

Ultimately the task of a leader in the corporate sector is to increase the market value of his or her company. In the first part of this decade, there was a widespread perception that most leaders were doing this. However we now know that we were living in an unusual age, where a rising tide lifted all boats. Post-crisis we now understand that most leaders, at least in the developed worlds of the US and Europe, were not achieving this aim.

"…..the task of a leader in the corporate sector is to increase the market value of his or her company…."

Yet most companies have leadership training at some level, either formal, or informal through mimicry. Why is this training not meeting the objective of overall market value increase and maximization? Is there something systemically wrong in leadership development in the corporate sectors of the developed world that also contributed to the recent systemic crisis? Are classical leadership approaches as much a part of the problem as more commonly recognized factors such as compensation systems, greed and ineffective regulation?

Classical Leadership Approaches Are Based on Dated Thought Systems

Corporations in the developed world have essentially settled on several systems of thought that we can collectively refer to as the classical leadership corpus.

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We can categorize the classical leadership corpus into three approaches. These are:

1. The personality approaches
2. The competency approaches
3. Other approaches

Personality approaches focus particularly on interpersonal and social functioning as well as styles of interaction with the world. They include approaches such as the Myers-Briggs type Indicator, the Five factor Model, the Hogan Personality inventory, the Minnesota Multiphasic Inventory approach to name but a few. Most of these are based on the ideas that were developed by Jung in the early 20th century.

"……This set of ideas was developed at the beginning of the 20th century. That is, these ideas are about 100 years old….."

There are, it is true some more recent approaches. These include most notably emotional intelligence from Daniel Goleman, and the Birkman and the Kolbe approaches. However emotional intelligence is really an extension of personality. None breaks new ground or introduces a new leadership paradigm and all are totally silent on strictly business and commercial outcomes defined in financial terms.

The competency approaches include systems such as the DISC, the McQuaig, the Chally and others. These take a broader view of human capabilities than the personality system and focus on thus abilities that have a vocational or semi-vocational aspect. The competency systems originally arose out of the time and motion studies in the early manufacturing companies that focus on individual capabilities that conferred an advantage to a manufacturing worker. These days this set of abilities has been enlarged to a very large number, in the hundreds. They are now used in leadership assessment although they usually possess no over-arching model of what actually constitutes a good leader in terms of the abilities they measure.

Again there are more recent variants of competency theories such as strength-finders from Marcus Buckingham. However this is essentially a pop-quiz version of other competency approaches and again breaks no new ground

There are an enormous number of **other approaches** to leadership which defy easy categorization. These include situational leadership, servant leadership and numerous team-oriented approaches. These cover thought systems ranging from the social, organizational, psychoanalytic and emotional.

However the personality and the competency approaches are by far the most widespread in terms of actual use and application. These drive most formal leadership programs and tend to guide most discussion about leadership issues.

But we can say one thing definitely about the classical leadership corpus. This is the ideas that it rests on are all fairly old. Personality theories, by far the most influential

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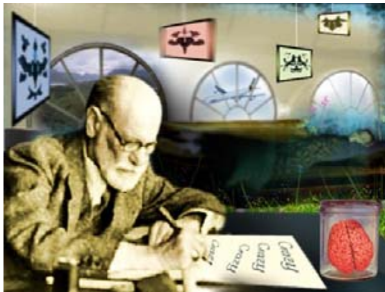
approaches underlying modern leadership theory and development, all date from Jung and Jungian theory. This set of ideas was developed at the beginning of the 20th century. That is, these ideas are about 100 years old.

Most Have a Psychoanalytic Bias

These ideas are from the realm of psychoanalysis, psychotherapy and psychiatry, studies which focus on personality pathologies. It is not surprising that in an age of megalomaniacs such as Hitler and Mussolini that approaches based on personality pathologies should have received such close attention and had such a major impact on leadership thinking. But, as we shall see below, the personality theories lack any direct business framework or focus, a fundamental problem as we enter the first decade of the 21st century in which finance and economics are primary drivers of human activities.



In fact the main focus of personality theory both then and now is interpersonal relationships. In those days the focus was on interpersonal relationships in the family. As the assessments have been applied more too corporate settings, the focus has shifted to interpersonal relationships in business and organizations. But the idea is the same: to look at the quality of relationships and the level of interpersonal functioning. They do not link directly with any commercial or business outcomes defined in financial or valuation terms.

Consider this. the personality theories were developed before the modern theories of economics were developed. They precede Keynes by 30 years and Friedman by 60. The people who developed personality theory were focused on the interpretation of dreams and on the workings of the unconscious, which dreams were felt to be able to illuminate. Neither Jung nor Freud ever led or had anything to do with a modern corporation, both ran single doctor practices and dealt with the interpretation of dreams and sexual disorders.

The psychoanalytic approaches developed by Jung had nothing to do with business, economics or finance. They could not have since he himself had no framework to describe these phenomena. Yet personality theories are routinely used for leadership assessment and development in numerous companies worldwide.

Competency approaches developed out of the time-and-motion studies of the newly-expanded General Motors under Alfred Sloan. They were essentially vocational tools to help select workers who would cope best with the pressure of the production line. Over time these approaches were expanded to cover broader classes of workers. Then they were co-opted to be applied to leadership roles.

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The competency assessments have been very successful in their application to vocational issues and are highly predictive of job performance in the vocational area. However as we shall see, their performance as a leadership tool is completely different.

The competency assessments date from the beginning of the development of industrial and organizational psychology. The focus of these approaches was the integration of humans into factories and production systems. These approaches take a reductionist view of human performance that is very useful in the milieu for which they were originally designed. However they were never designed originally as leadership systems and none incorporates any model of leadership per se, or of the commercial and business outcomes that flow from them.

Supplemented Later by Sociological and Anthropological Bias

The third category of approaches incorporates a variety of models. However these usually center on emotional and social functioning. Intellectually these approaches date from Durkheim and his sociological models. These models frequently are applied to teams and to organizations and to their functioning from a sociological and an anthropological perspective. We can encompass these approaches within the rubric of social psychological approaches.

"…….However they [competency assessments] were never designed as leadership systems and none incorporates any model of leadership per se….."

These approaches go well beyond the original personality and competency approaches which are above all focused on the individual and his functioning. This set of approaches focus on team and organizational functioning. However we need to note yet again that these approaches are not oriented to business per se at all. They have no direct links whatsoever with commercial and business outcomes from a commercial perspective. Yet again they were developed in the main well before the development of modern economics and finance.

They Also Have Fundamental Systemic Flaws

With the wisdom of time, hindsight and a lot of experience in the field we can now see that the classical leadership corpus incorporates systemic flaws. These include the following:

1. Focus on interpersonal skills
2. No focus on strictly business outcomes
3. Ignores decision-making biases

Interpersonal skills have become such a part of leadership development that it might seem strange that this would be listed as a systemic flaw. Of course, interpersonal skills are vitally important in good leadership. But the problem has been that the focus on interpersonal skills has been at the expense of approaches that focus on job performance

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and leadership outcome. Relatively recent meta-analyses by leadership experts have demonstrated unequivocally that personality assessment results are not correlated whatsoever with leadership performance or job outcome[1].

This does not mean that a focus on interpersonal skills is wrong or misguided. Nor does it mean than there should not be development of leaders aimed at improving the vital interpersonal skills needed in leadership. What this means is that there has been a systemic failure in leadership study where the focus on interpersonal skills been at the expense of questions of leadership outcome and performance and the skills that are related to these.

Business Outcomes: It is clear that ultimately good leadership must result in increased organizational or company value. Most times this will be reflected in business and financial metrics such as profitability and company valuation. But until very recently there has been no work whatsoever on the direct behavioral links between leadership and business and financial outcome and the associated financial and valuation metrics. We will explore this work further below.

Leadership approaches that focus on personality, competencies and team dynamics are all useful in themselves. However they do not link with the financial and valuation outcomes in a direct and measurable way in a manner that is desired and required by shareholders. These leadership approaches are inwards-looking, focusing on the competencies that lead to better interpersonal and organizational functioning, which is fine in itself but does not address directly the links between leadership and profitability and competitive outcomes.

When boards and shareholders examine the performance of a CEO and his management team, their attention will ultimately be directed to the business and financial metrics rather than the organizational and interpersonal metrics. Until leadership approaches integrate these concerns directly into their ambit, this issue constitutes the major systemic gap in modern leadership approaches.

Ignores decision-making biases: The classical leadership corpus makes a distinction between rational leaders and those with personality pathologies such as narcissism. Clearly the leaders with pathologies will have problems in leadership performance. But this corpus has not addressed the issue of why leaders who are rational may still underperform or even fail badly.

"….But this corpus has not addressed the issue of why leaders who are rational may still underperform or even fail badly….."

[1] Morgeson, F.P., Campion, M.A., Dipboye, R.L., Hollenbeck, J.R. Murphy, K. Schmitt, N., "Reconsidering the Use of Personality Tests In Selection Contexts," Personnel Psychology, 2007, 60, 683-729

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In effect the classical leadership corpus equates rationality with good performance. Yet, as we shall show below, the existence of universal cognitive biases in all humans and in all leaders and managers means that most decision-making is fundamentally flawed. This has not been addressed at all in the classical leadership corpus. This, along with classical economics and finance, assumes that rational actors will have the best performance and that lack of performance can be addressed merely by ensuring that the leader has more information and knowledge at his disposal.

"…..In effect the classical leadership corpus equates rationality with good performance……"

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PART 2 THEY REQUIRE NEW LINKAGE TO BUSINESS OUTCOMES

Shareholders Want to Know Where's the Beef

Leadership in modern organizations is required to increase profitability and valuation. This applies to both public and private companies alike. Scarce capital is used by these organizations and the ability to make it more effective is a key requirement of modern leadership. Leaders who do not do this are routinely removed in order to find leaders who can. So leaders must drive better financial and valuation outcomes in order to be better leaders.

Yet, as we have shown, the classical leadership corpus signally fails to do this. Leadership assessments focus on interpersonal skills and certain behavioral competencies. While these are relevant to leadership, they do not define its success in modern organizations. Success in modern organizations is ultimately financial and valuation outcome. To be precise, if an organization gets a better valuation outcome than its competitors, then its leadership has performed better. Nothing else counts as long as the organization operates ethically and is reasonably managed.

The major criteria in the classical leadership corpus for leadership success are interpersonal, team and organizational functioning. Thus derives from their intellectual bases which are psychoanalytic, sociological and anthropological. Basically they look to harmony rather than outcome. They tend to be employee- rather than shareholder-focused. So they lack the intellectual underpinnings which focus on the building of financial valuation and maximization of capital creation.

The overwhelming problem with modern leadership approaches is the failure to link directly with leadership outcomes, defined in financial and valuation terms. The classical leadership corpus cannot help this since it has intellectual foundations that are largely unrelated.

In order to build the necessary linkages, we need to turn to the disciplines of economics and finance. These are disciplines which experts in conventional leadership and human resources are generally uncomfortable with. This probably explains at least partially why these disciplines have not been enlisted. So we shall turn our attention to them now to see

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to what extent they can meet the requirement of linking leadership and financial and valuation outcomes.

But Traditional Economics and Finance Assume Perfect Rationality

Classical economics has a history dating back to the 19th century. The classical economists ranging from Adam Smith to Keynes built formal models based on a very particular psychological platform. That platform assumed that individuals and corporations are rational economic actors. This allows a sophisticated structure of models to be built.

At the microeconomic level it allows for the development of utility theory. This in turn allows for the development of choice theory for both consumers and corporations involving indifference curves and the like. The assumption of rational economic actors underlies the full range of microcosmic topics ranging from pricing, demand theory, consumer choice and more latterly decision and game theory. Latterly these theories have been extended to modern work in the areas of options and options prices, derivatives and synthetics.

"…..classical economics and finance are reminiscent of classical leadership models. In both, rationality is the basis for the model to work……"

At the macroeconomic level, the assumption of rationality allows for the development of theories regarding a wide variety of topics including interest rates, money supply, and consumer demand. These in turn have been built up into models of growth which incorporate linkages between investment and consumer behaviors, savings and investment, interest rates and money supply. It is from this base that the idea of the efficient market hypothesis arises. All of these models depend on the assumption of rationality to work.

Economists have always known and accepted that these theories are an approximation to the real world. The models work fairly well when conditions do not change much. However it has become increasingly clear that the classical economic models do not work at all in the following cases:

- When conditions change significantly
- In predicting major changes in corporate valuation
- In predicting macroeconomic inflection points and crises

It is increasingly being seen that classical economics tends to work best when conditions do not change much, and when rational behaviors dominate the market. When these conditions are infringed, then classical economics and finance break down and cannot predict the outcome.

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In this sense, classical economics and finance are reminiscent of classical leadership models. In both rationality is the basis for the model to work. When irrationality enters, the models break down. In both cases the models cannot predict what happens if most behavior is not rational. So the classical theories have major restrictions that limit them to only being valid in particular, relative narrow situations.

That is one reason why leadership approaches have not been able to incorporate classical economics and finance in order to link financial and business outcomes. These classical disciplines assume a level of rationality that is just unrealistic in leadership and thus prevents them being used for real-life leadership situations. For economics and finance to play a part in linking leadership with business outcomes, they must be able to able to address irrationality in decision-making.

Irrationality is Now Being Addressed Through New Behavioral Disciplines

. We have always known that leaders and decision-makers have biases. The trouble is that they are difficult to model in particular situations. We may know that a leader tends to under-spend or over-spend, but predicting that in advance for a particular leader or company is difficult and requires models that have only recently commenced development.

We know that there are numerous other types of biases that affect decision-making. However these had never been cataloged or their effects formally described. So although theorists knew that rationality was not really realistic, a formal platform had never been developed to model those biases.

"….how to formally link decision-making that is not necessarily rational to financial and business outcomes….."

The issue has been how to link irrationality – or to be more accurate, mixed rationality - in decision-making with economic and financial outcomes. The first steps in this process have been made with the emergence of the new disciplines of behavioral economics and finance. These disciplines formally relax or drop the assumption of rationality in building models of economics and financial phenomena. For the first time we now have a language and models that link financial outcomes to real-decision-making in the real world.

This allows us for the first time to formally link decision-making that is not necessarily rational to financial and business outcomes. Since this is what leaders do, we now have for the first time a set of models that can use be used to describe and predict leadership behaviors and outcomes, in business and financial terms.

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Behavioral Economics & Finance Open Up New Leadership Approach

Their Newness Explains Why Leadership Approaches Haven't Caught on Yet: The field of behavioral economics and finance can be said to have received formal recognition of their intellectual coming-of-age with the award of the 2002 Nobel Prize for economics to Daniela Kahneman of Princeton University for his work into behavioral economics.

Research into this field commenced in the 1960s with work by Nobelist Herbert Simon and expanded in the 1970s with the development of what is called prospect theory. Prospect theory is a theory of decision-making where decisions have uncertain outcomes and people have different ways of evaluating gains and losses. These decisions are not necessarily financial in nature although much of the work that surrounds them is concerned with economics and finance.

> **"......good analysis in the hands of managers won't naturally yield good decisions…"**
> ***McKinsey***

The research has been motivated by the increasing divergence between prediction and reality in the fields of economics and finance. It had become increasingly clear that economies and finance were not approximating reality and that a new approach was needed.

For the first time, what we term "irrationality" has been formally opened to research and investigation in the fields of economies and finance. These new fields provide comprehensive explanations and models as to what constitutes irrationality in decision-making and show how it leads to totally different types of economic and financial outcomes to those predicted by classical theories.

Behavioral Disciplines Explain Much That Was Hitherto Inexplicable

The new behavioral disciplines have far-reaching ramifications for most business and economic areas. .They impact decision-making, human resources, strategy, marketing, consumer choice, advertising, talent development and human resources, investor behavior, and stock market behaviors to mention just a few. So far the impact is at an early stage since the fields are still very new and practitioners of these disciplines are only slowly coming to grips with their many implications.

Recently McKinsey Quarterly carried an article on this subject. They cite some of the problems that are caused by the lack of understanding of behavioral strategy. These include failed mergers and acquisitions, large projects usually being over-budget and strategies usually ignoring competitive responses or getting them badly wrong.

McKinsey has conducted some fascinating research on this issue. This research concludes that, contrary to what one might expect "good analysis in the hands of managers won't

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naturally yield good decisions…" This of course flies in the face of conventional approaches that assume if we are smart, reasonably educated and have the right data, we will have a very good chance of making a good decision that will have a beneficial outcome. It explains why, to the contrary, so many decisions at all levels of management, informed by the best analysis possible, so often yield poor outcomes.

As one might expect from a consultancy that focuses on strategy, the McKinsey research has a lot to say about the implications of behavioral disciplines for strategy development. Their work suggests that cognitive biases affect the smartest executives in the most important strategic decisions in the best companies.

For leadership this has critical implications too. It suggests that most leaders are unaware of their biases and therefore are not in a position to compensate for them. In hiring, developing and promoting leaders, those who participate in these processes cannot identify these biases and predict their impact on the quality of leadership of the managers they are promoting.

"….cognitive biases affect the smartest executives in the most important strategic decisions in the best companies…." McKinsey

In sum, if anyone ever wanted a good explanation why so many leaders fail, and why so many boards and leadership experts tend to make so many bad hires, one has only to look at the previous formally unrecognized issue of cognitive biases.

The behavioral disciplines are not just about finance and economics; they are ultimately about leadership and how flawed the outcomes of leadership are likely to be. That these outcomes can also be measured in financial and economic terms is a bonus, but the behavioral disciplines provide a new perspective on any type of decision, be it economic and financial or otherwise.

In Categorizing Types of Cognitive Bias

In their new theory, termed prospect theory, Kahneman and Tversky in the late 1970s identified and set out a number of cognitive biases that routinely impact decisions, both financial and otherwise. What they pointed out was that these biases had never been taken into account in classical economics and finance. The existence of these biases meant that the rational decisions assumed by classical theorists were very unlikely in the case of many if not most decisions.

It is not the intention of this White Paper to provide a primer on behavioral economics and behavioral finance. However it will help to provide some examples of these cognitive biases. In their book, some of the principal biases mentioned were as follows:

- Framing effects: The way a problem or decision is presented to the decision maker will affect their action.

- Sunk cost fallacy: The tendency to continue to invest in something, even if it is a hopeless case
- Status quo bias: people prefer that things remain the same, or that things change as little as possible, if they absolutely must be altered.
- Endowment effect: people value a good or service more once their property right to it has been established.
- Loss aversion: people's tendency to strongly prefer avoiding losses to acquiring gains. Some studies suggest that losses are twice as powerful, psychologically, as gains
- Anchoring effect: the tendency to rely too heavily, or "anchor," on a past reference or on one trait or piece of information when making decisions
- Overconfidence effect: excessive confidence in one's own answers to questions. For example, for certain types of question, answers that people rate as "99% certain" turn out to be wrong 40% of the time.
- Survivorship bias: concentrating on the people or things that "survived" some process and ignoring those that didn't, or arguing that a strategy is effective given the winners, while ignoring the large amount of losers.

There are numerous other cognitive biases that have been identified. These biases are not just ones that have been observed. All of them have been tested through actual experiment so that the situation can be controlled scientifically. So the existence of these biases has been scientifically confirmed, measured and manipulated to see their effects in many different situations.

It will be clear that these cognitive biases operate within the decision-making environment of any company. So these cognitive biases must be a key driver of problems in these companies. They are therefore an important microeconomic factor. Of course, this also means that they are a crucial factor in leadership, talent management and talent development for any company.

"….so these cognitive drivers…. are a crucial factor in leadership, talent management and talent development for any company…"

Since these biases operate in all companies and in all organizations, including in nonprofits and governmental organizations, they also operate at the macroeconomic level. This means that they impact demand and supply at the macroeconomic level, and in the areas of growth, trade and investment. Again this impacts leadership at the national levels as well as the international levels.

It does not take a great leap of imagination to see that these cognitive biases are crucial in assessing and studying leaders and the outcome of the decisions. Yet none of this way of thinking has yet impacted leadership approaches.

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This is probably due to two main factors. First, this is a relatively new field of study. Second many leadership experts feel uncomfortable with business issues and particularly with economics and finance so they stay away from these topics. Clearly this will have to change if leadership approaches are to keep up with the times.

But the New Behavioral Models Are Far From Perfect

Some Key Issues Not Yet Addressed: So the new behavioral models open up vast new swathes of territory not only in the economic and financial arena, but also in the arenas of decision-making, leadership, talent management and development. They also provide new perspective on strategy development and implementation. They suggest that too much information can be as dangerous as too little. They provide new ways to improve decisions and to optimize their outcomes in business terms.

But as with any new discipline, they still leave vast swathes of problems unaddressed. This is not a criticism; it is just to state that now these new disciplines have opened up new territory for investigation, they have also allowed new questions to be asked which so far have not been answered and in some cases cannot be answered without more advances in theory and more data from experience. This is the case with the behavioral disciplines.

Some of the problems that are not addressed by behavioral economics and fiancé are the following:

The Problem of Individual Prediction: The behavioral disciplines have identified a rich catalog of cognitive biases and described their effects. Although these effects work at the level of the individual, we can only use them predictively at the level of the group. The new behavioral disciplines provide no model that allows us to predict how these cognitive biases will act in the case of a specific individual, a specific team or a specific company.

We term this problem, the "atomism" problem. We can predict at the level of the organization, say the country, or a large group of consumers. But we cannot make predictions at the level of the individual social atom, the individual, the consumer, the manager, the specific team in a specific company. For the behavioral disciplines to be seen to be more than an academic exercise, they need to address and provide solutions to this problem.

Predicting Precise Business Outcomes: Even more importantly these do not show the actual financial outcome of these cognitive biases for any individual, team or company on business outcomes such as profitability or valuation. Yet it is precisely these issues that are of most interest and utility to shareholders, investors and economists who wish to predict these matters so that the work can have **real-world relevance**.

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We term this problem the "outcome" problem. We need to be able to do more than just say that a particular cognitive bias will distort the outcome of a decision. We need to be able to say how this will happen in practice. In particular we need to be able to couch the outcome in measurable and quantitative terms that are part of the financial and valuation metrics of a company so that we can link behaviors and cognitive biases directly to profitability and capital creation or consumption.

The Problem of Non-Financial Decisions: Not all or even most decisions have an explicit financial element; yet the behavioral disciplines couch their terminology in financial and economic terms, as they must given their intellectual background.

Yet it is clear that cognitive biases impact non-financial and economic outcomes just as much as they do financial and economic outcomes. The behavioral disciplines have done much less to analyze the impact on the non-financial arenas. This is because they incorporate a game-theoretic approach, garnered from the game theories of the 1960s which again have a decidedly financial approach.

In this instance the boot is on the other foot. The behavioral disciplines have a gap in the areas of social, sociological and anthropological functioning that is as much as a gap as leadership approaches lack a focus on business outcomes.

The Problem of Non-Financial Actors: The behavioral disciplines started their work by focusing on consumers and investors. It was only later that they broadened their focus to corporate managers but even then the focus was on corporate financial managers rather than all managers.

But the work has not yet broadened its reach to actors who are explicitly focused on non-financial issues such as corporate managers of sales for example. Yet it is clear that these players also have an impact on business outcomes through the impact of their cognitive biases. <u>Just because they are not primary initiators of investment or P&L managers does not mean they do not have an impact on the overall P&L of the organization, or on its valuation.</u>

But the behavioral disciplines are not so comfortable in the non-financial arenas and so have tended to avoid these issues. So these new disciplines so far are more oriented to actors that are explicitly economic and financial actors which limits the applicability of the research to some of the most intriguing and important issues in corporate decision-making and finance.

Atomism and Outcome Problems Most Important: Of the above, the atomism and outcome problems are the two most important. This is because they prevent the theory being operationalized so that it can be used in practice to improve the outcome of decisions. If the aim of a scientific theory is control, then the behavioral decisions are still some way away from this goal. Later in this White Paper we will show some later developments that specifically address these problems and provide some solutions.

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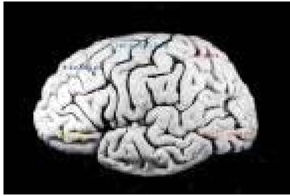
Neuroscience and Neuro-Economics Provide Atomistic View

As behavioral economics and finance have emerged and expanded, so has the demand for other types of investigations that would provide increased knowledge on behavior, decision-making and in particular economic and financial decision-making. This new research addresses the issue of the individual level head-on and provides an atomistic perspective that advances the understanding of behaviors at the individual level.



This research relies on MRI, magnetic resonance imaging. This allows scientist to look a brain in real-time to see precisely which areas are impacted when the brain is carrying out certain activities which the subject has been told to think about in advance. These include making decisions on certain matters, or thinking about certain things.

This research aims to elucidate the physical and physiological mechanisms that are involved when decisions are being made or when certain types of thoughts are being played out. The aim is not only to look at physical brain locations involved, but also to look at the types, intensity and frequency of brain waves and other impactors such as changes in brain chemicals and neurotransmitters.

The more general science has been termed neuroscience. This broader approach investigates thoughts, decisions and emotions. The narrower research is called neuroeconomics. The aim of this science is to elucidate physiological mechanisms involved when the brain is making economic and financial decisions and making choices.

Like neuroscience, neuroeconomics can be experimental in nature so that the fully range of scientific tools can be made and hypotheses investigated. Experimental economics can be combined with neuroeconomics to gain a much deeper appreciation of the biological mechanism involved in economics and financial decisions.

This research also extends to neurochemistry and in particular to the neurochemical oxytocin, the so called love chemical. This research also looks the impact of certain neurochemicals on behaviors, particularly trusting behaviors and their impact in human interactions. While oxytocin has been the hot topic, it is likely that this is just one of a class of neurochemicals that mediate behaviors including financial and economic behaviors and also the mechanisms of choice.

These new channels of research are also opening up new perspectives on economics, finance and decision-making, this time from a biological and physiological perspective. However we need to note that these are not cognitive but "wetware" models that give us physical rather than cognitive explanations of decision-making and choice.

The wetware models do address the atomism issue. They add to the knowledge concerning how to make predictions at the level of the individual, something that we

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cannot do with current behavioral economics and finance. But these approaches still do not allow us to make predictions about business outcomes, a key requirement for relevance and use in the corporate world.

Recent Empirical Studies Address Behavior and Business Outcome

However there is increasing work which investigates the decision-making characteristics of CEOs and managers and links these to their impact on company financial and valuation performance. One pioneering piece of research by Marianne Bertrand and Antoinette Schoar[2] specifically looks at the managerial characteristics of CEOs to investigate their impact on a wide range of corporate financial variable.

This work finds a high correlation between the two. The authors find that these managerial behaviors can be characterized as distinctive financial styles that have a characteristic and unique impact on company financial metrics and performance. The authors specially note that they are departing from the usual economic approach which is to look at financial outcomes at a firm, industry or market level.

"…..The literature now shows that the issue of managerial financial style is real and can be correlated statistically with characteristic financial and valuation outcomes….."

In other words, this study specifically addresses the issues of atomism and outcome in leadership behaviors. This work finds high correlations between the two. The literature now shows that the issue of managerial financial style is real and can be correlated statistically with characteristic financial and valuation outcomes.

More recent research shows the consistency of financial styles between personal and corporate financial choices on the issue of personal and corporate leverage, again linking financial behaviors with financial outcomes.[3] It shows that CEOs' personal financial behavior is at least partially predictive of their companies' financial performance.

In sum, this recent empirical work addresses the issue of business outcome more comprehensively than has been done with the classical works of behavioral economics and finance. The problem is that there are no theoretical constructs or models underlying the behavioral side of the problem.

So while wetware and CEO studies address respectively atomism and business outcome, neither address both and link the atomistic level directly with business outcomes in a

[2] "Managing with Style: The Effect of Managers on Firm Policies"; *Quarterly Journal of Economics*, 2003, *118*(4), pp. 1169-208

[3] Cronqvist, H, Makhija, A. K., Scott E. Yonker, S.E, "Behavioral Consistency in Corporate Finance: CEO Personal and Corporate Leverage" June 2010, http://74.125.155.132/scholar?q=cache:yO5GnN9KuNoJ:scholar.google.com/&hl=en&as_sdt=40005&sciodt=40000

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formal model that simultaneously addresses both. But that issue has now recently been addressed as we shall show in the final part of this paper.

Leadership Training and Business Metrics

Leadership training often incorporates the words "business outcomes". However the problem is that it rarely shows the direct linkages between behavior and business outcomes. Most work on this tends to show that a high level of investment in training leads to positive business outcomes. However it does not show any direct linkage. So a lot of this research lacks credibility since it cannot show a direct linkage.

What is becoming clear is that, if leadership training is to have a direct link with business outcomes, it should be linked with business performance metrics, not just outcomes, broadly defined. This point has been emphasized recently in a report by McKinsey which indicates that the training must incorporate key business performance metrics in order to have the effect that most organizations desire.[4] In other words, traditional leadership training that, for example, focuses on interpersonal and social skills should also incorporate these issues in order to have maximum effectiveness.

Of course, this would require a major shift in curricula. But the weight of evidence is that even talk about business outcomes is not enough if the training and development does not also link directly to business and financial metrics which reflect the concerns of shareholders and investors as well as employees.

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[4] Cermak, J., McGurk, M., "Putting a Value on Training" McKinsey Quarterly, July 2010

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PART 3 THE PERTH MODEL PROVIDES THE MISSING LINK

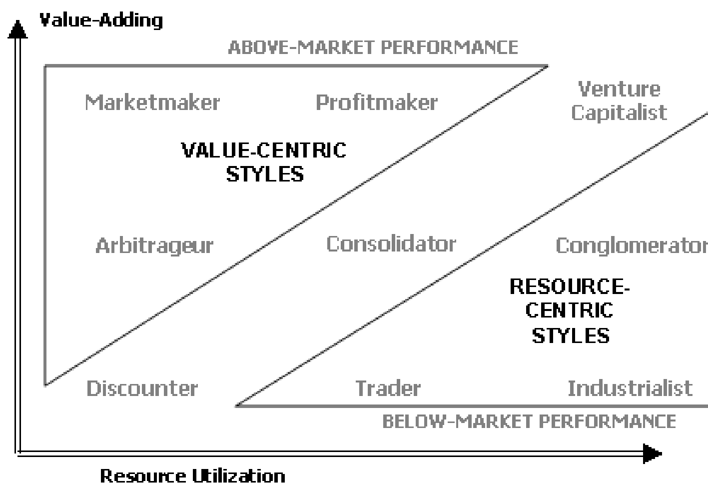
Financial Signatures Address Atomism

The Perth Leadership Outcome Model is so-called since it is concerned only with the outcome of behavior, not the behavior itself[5]. It defines outcomes in financial and valuation terms.[6] This model addresses both the issue of atomism and the issue of business outcome in a formal model that categorizes the types of financial behaviors and the financial and valuation outcomes that flow from the,

The research is based on fieldwork with some several hundred CEOs and then with numerous other senior executives. It is based on the observation that we all have individual financial traits. These financial traits lie deep within us, so we shall call them innate. These financial traits constitute an internal calculus which drives how each of us approaches decisions involving risk and reward and cost and benefit. They imprint themselves on all of our decisions, in the vast majority of cases without us knowing this.

The research shows that there are distinct behavioral patterns which reflect different ways that individuals are driven by these internal factors to create financial value. These behavior patterns are called financial signatures. The research has identified nine financial signatures which we show below.

Figure 1 The Nine Financial Signatures



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[5] Prince, E. Ted, The Three Financial Styles of Very Successful Leaders, McGraw-Hill, New York, 2005
[6] Prince, E. Ted. "Research Note: How the Financial Styles of Managers Impact Financial and Valuation Metrics" Review of Accounting and Finance, Vol. 7, Issue 2, 2008, pp. 193-205

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These financial behavior patterns, or financial signatures, are composed of two dimensions of financial traits. These are the propensity to utilize resources to a greater or lesser degree in achieving business goals, and the propensity to add commercial value to products or services, again in achieving business goals.

Each financial signature is in effect a personalized and at least a partly irrational response to a financial situation which imposes a systematic and predictable bias on all of our financial decisions. Thus individual behavior and individual cognitive effects have led the decision to be at least partly irrational in the particular manner which is dictated by the particular position that the manager occupies on the above diagram. Thus the model is one that incorporates the cognitive biases of the individual concerning the factors of value-adding and resource utilization.

And Provide a Formal Model of Business Outcome

The resulting financial signature shows us the behavioral propensity of an individual to generate capital to a greater or lesser extent. In the diagram, financial signatures to the upper left generate more capital since their propensity to add relatively high amounts of value more than outweighs the resources they are behaviorally inclined to consume in achieving this value. On the other hand, on the right hand lower side of the diagram, individuals will be using a level of resources which generally will not be outweighed by the value-added contribution, which will lead to the generation of less or even the consumption of capital.

"…..Each financial signature is in effect a personalized and at least a partly irrational response to a financial situation which imposes a systematic and predictable bias on all of our financial decisions….."

Financial signatures represent the most basic level of financial behavior. These can be grouped into styles which aggregate the signatures into a higher level representing the financial impact of these styles.

We can divide the nine financial signatures into three financial styles based on this diagram. These are the Value-Centric, Balanced and Resource-Centric styles. The first will tend to outperform the market and the last to under-perform while the balanced styles will perform at the market level.

Thus financial signature and style can tell us not only about the level of individual performance we can expect, but what will happen if a company is composed mainly of a particular financial signature or style relative to its close competitors and to the market it participates in as a whole.

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The Model is Measurable in Business Terms

Perth has developed instruments to identify and measure financial signature, most notably its Financial Outcome Assessment instrument. This has been given to almost 1,000 participants. Results show that most people cluster to the lower right of the financial signature chart.

Most managers have financial signatures that lead them to under-perform the market and either to generate less capital than their close competitors or to consume it. This pattern prevails even at high executive levels and so far the research has not been able to find a statistical difference in financial signature between executives and other levels.

This parallels work done in other leadership studies which shows that on both personality and competency tests, there are no significant differences between managers at widely different levels[7] It also provides a more scientific underpinning for studies that show that few leaders consistently make money and that the vast majority fail as leaders, on both straight leadership and financial results grounds[8]

"…..the Value-Centric financial styles lead to relatively high growth and high capital generation over the longer-term….."

The value-added dimension of financial style is reflected in the gross margin of a unit or enterprise relative to other similar units or close competitors. That is, this accounting measure is a true measure of value-added, both at a corporate and at a behavioral level. We use this measure and not profitability since the latter does not measure value-added. It was not designed to do so, and in any case is too prone to manipulation to be useful.

Similarly the resource utilization dimension of financial style is reflected in the level of indirect expenses relative to other units doing similar work or to close competitors. Once again we need to convert this to a percentage of revenue to allow comparison with other units in the organization and with close competitors.

By adopting this approach, we can calculate the financial mission of the unit or enterprise and compare it to its competitors. This will show the relative positions of the enterprises in a market from the viewpoint of their financial mission.

If financial signature leads to a systematic bias to financial decisions either by individuals or teams, we would expect this to be reflected in the valuation of a company. Our original research found such an impact. Basically the Value-Centric financial styles lead to

[7] Hogan, Robert. 2006 *Personality and the Fate of Organizations*. New Jersey: Lawrence Erlbaum, p. 41
[8] Ibid, p. 206; Lucier, C., Kocourek, P. and Habbel, R. CEO succession 2005. rhe crest of the wave. 2006 *Strategy and Business*, Summer, pp. 100-113.

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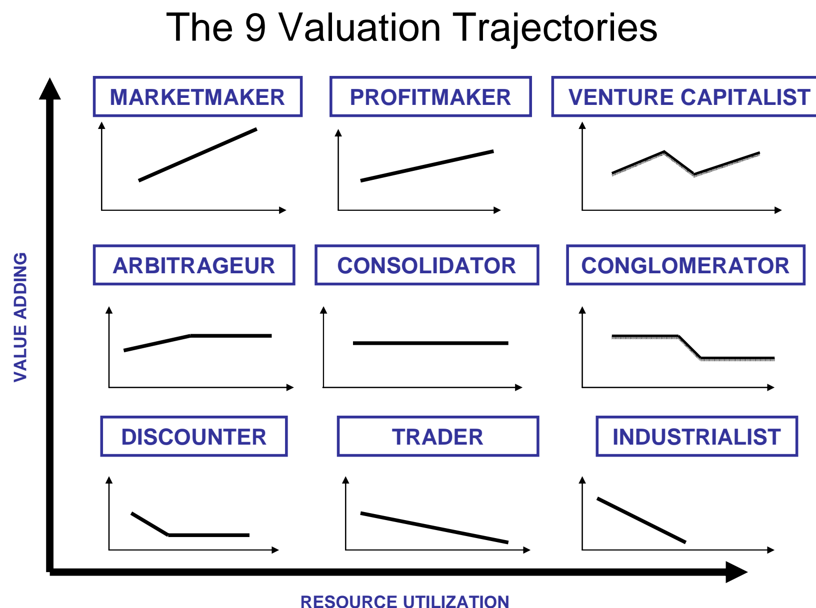
relatively high growth and high capital generation over the longer-term, since the value-added impact of the style more than outweighs the resources utilized in its achievement. The reverse is true for the Resource-Centric styles which lead to relatively low growth over the longer-term and thus relatively low or negative capital generation.

Figure 2 The Nine Valuation Trajectories



The Perth model addresses corporate and microeconomic issues and decision-making via the concept of the financial signature and the associated valuation outcome. It addresses macro-economic and regional and national decision-making via the aggregation of these signatures at the appropriate social levels. The cognitive biases it addresses can be measured both psychometrically through assessments and financially as reflected in the financial statements of a company.

The Perth approach does takes behavioral finance a major step forward by enabling prediction to be carried out at the level of a specific individual, team or company and to predict the precise financial and valuation outcomes that will flow from these decisions. The approach is measurable and able to be operationalized so that it provides results that can be falsified, the major criterion of a scientific method.

Providing an Atomistic-Outcome Behavioral Synthesis

The Perth model is strictly concerned with business outcomes. They must be measured in terms of their value and valuation impact. Leadership only has an impact if it impacts business outcomes. Anything else may be a valuable outcome but unless it impacts

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organizational value and valuation measured in financial terms, it is not a criterion for deciding if leadership has been successful or not

The Perth model leads to a new type of synthesis between behavior, business outcomes and leadership. This results in the following principles:

Leadership is valuation; we can only measure leadership through its results; leadership can only be said to be successful if the valuation of the unit, team or enterprise increases relative to its competitors.

Valuation is outcome: In any organization, its valuation relative to its competitors drives its outcome. This valuation may be measured in financial or non-financial terms both quantitative and qualitative, such as in nonprofits or a governmental organization.

Valuation is behavior: Valuation is not profitability, assets, sales or intellectual property; these are merely symptoms of behavior. The financial metrics which measure these quantities are merely measuring the results of behavior and they should not be confused with behavior or valuation itself.

All employees have a virtual P&L: every employee contributes to the valuation of an enterprise, even if they are not aware of that fact. Each of them has a virtual P&L, whether or not it is recorded. The job of all employees is to increase their own virtual P&L so that they increase the valuation of their unit, team or enterprise.

All decisions have a value impact: Even if the decision is not explicitly financial in nature, it will have a value impact since it comprises two drivers, value-adding and resource utilization. These may be measured in financial or objective or in qualitative or non-financial terms.

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