

# Monetary Intelligence and Behavioral Economics Across 32 Cultures: Good Apples Enjoy Good Quality of Life in Good Barrels

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# Monetary Intelligence and Behavioral Economics Across 32 Cultures: Good Apples Enjoy Good Quality of Life in Good Barrels

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**Abstract** Monetary Intelligence theory asserts that individuals apply their money attitude to frame critical concerns in the context and strategically select certain options to achieve financial goals and ultimate happiness.

This study explores the bright side of Monetary Intelligence and behavioral economics, frames money attitude in the context of pay and life satisfaction, and controls money at the macro-level (GDP per capita) and micro-level (Z income). We theorize: Managers with low love of money motive but high stewardship behavior will have high subjective well-being: pay satisfaction and quality of

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life. Data collected from 6586 managers in 32 cultures across six continents support our theory. Interestingly, GDP per capita is related to life satisfaction, but not to pay satisfaction. Individual income is related to both life and pay satisfaction. Neither GDP nor income is related to Happiness (money makes people happy). Our theoretical model across three GDP groups offers new discoveries: In high GDP (rich) entities, “high income” not only reduces aspirations—“Rich, Motivator, and Power,” but also promotes stewardship behavior—“Budget, Give/Donate, and Contribute” and appreciation of “Achievement.” After controlling income, we demonstrate the bright side of Monetary Intelligence: Low love of money motive but high stewardship behavior define Monetary Intelligence. “Good apples enjoy good quality of life in good barrels.” This notion adds another explanation to managers’ low magnitude of dishonesty in entities with high Corruption Perceptions Index (CPI) (risk aversion for gains of high probability) (Tang et al. 2015. doi:10.1007/s10551-015-2942-4). In low GDP (poor) entities, high income is related to poor Budgeting skills and escalated Happiness. These managers experience equal satisfaction with pay and life. We add a new vocabulary to the

conversation of monetary intelligence, income, GDP, happiness, subjective well-being, good and bad apples and barrels, corruption, and behavioral ethics.

**Keywords** Prospect theory · GDP · Corruption Perceptions Index/CPI · Satisfaction · Corporate ethical values · International · Cross-cultural · Global economic pyramid · Behavioral economics · Economists/psychologist

## Introduction

Economists have traditionally focused on actual behavior and shied away from the use of survey data because survey data are subject to various biases of individuals who complete the survey instrument as well as the survey instrument itself. In 2002, Daniel Kahneman, a psychologist, received the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. Due to the acceptance of psychological survey methods in economics, many behavioral economists supplement the methods commonly applied by economists with those more common to psychologist (Graham 2010; Graham et al. 2004).

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Prospect theory investigates individuals' choice of options, usually *framed* in gains and losses and high and low probability. In their paper published in *Science*, Tversky and Kahneman (1981) asserted: "The frame that a decision-maker adopts is controlled partly by the formulation of the problem and partly by the norms, habits, and personal characteristics of the decision-maker" (p. 453). Prospect theory provides a value function that is concave for gains, convex for losses, and steeper for losses than for gains (Kahneman and Tversky 1979). The fourfold pattern of risk attitudes is one of the core achievements of prospect theory: risk aversion for gains and risk seeking for losses of high probability; risk seeking for gains and risk aversion for losses of low probability (Kahneman 2011).

Interestingly, in his recent book, *Thinking, Fast and Slow*, Kahneman (2011) mentioned: "There may also be cultural differences in attitude toward money." "Such a difference may explain the large discrepancy between the results of the 'mug study' in the United States and in the UK. Much remains to be learned about the endowment effect" (pp. 298–299). Following his argument, little or no research has incorporated "cultural differences in attitude toward money" in testing prospect theory nor extended

prospect theory from a choice of options at the individual level to managers' ultimate choice of life satisfaction and pay satisfaction across cultures. Individuals' satisfaction may be highly influenced (controlled) by their deeply rooted monetary values, an individual difference variable, within a broader system of values and goals (Grouzet et al. 2005; Dittmar et al. 2014).

Money is the instrument of commerce and a measure of value (Smith 1776/1937). The meaning of money, however, is in the eye of the beholder (McClelland 1967; Tang 1992b, 1993, 1995). Money has mysterious and magical qualities, numerous usage, and multiple symbolic meanings across various cultures and religions (Furnham 1984, 2014; Krueger 1986; Zelizer 1989). Most people *think* about money all the time, but *talk* about it very little and only to a very few people (Rubinstein 1981).

Among mostly idiosyncratic studies of money attitudes (Mitchell and Mickel 1999), we focus on a systematic, vibrant, and distinct research stream of Monetary Intelligence (MI) that involves ABC sub-constructs: (1) Affective—love of money motive (Factors Rich, Motivator, and Importance), (2) Behavioral—stewardship behavior (Make, Budget, Give/Donate, and Contribute), and (3) Cognitive—

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symbolic meaning (Happiness,<sup>1</sup> Respect, Achievement, and Power) (Chen et al. 2014; Tang and Sutarso 2013). High love of money motive leads to pay dissatisfaction and dishonesty (Tang and Chiu 2003) and predicts cheating (Chen et al. 2014). Individuals who fall into temptation (Baumeister 2002) tend to have poor Monetary Intelligence—poor stewardship behavior, but high cognitive value toward money—which, in turn, leads to dishonesty (Tang and Sutarso 2013). Students' *high* love of money motive predicts *poor* objective academic performance of a business course at the end of a semester (Tang 2014). It is not the money, but the motive that causes dissatisfaction (Liu and Tang 2011; Luna-Arocas and Tang 2015; Srivastava et al. 2001; Tang 1992b, 1995, 2007; Tang et al. 2005), dishonesty (Sardžoska and Tang 2015; Tang et al. 2015), cheating (Chen et al. 2014), and poor academic achievement (Tang 2014).

People with higher income have higher levels of happiness, compared with others in their society. However, higher-income aspirations reduce people's marginal utility of income (Frey and Stutzer 2002). According to Nobel Laureates Kahneman and Deaton (2010), after individuals reaching a fairly comfortable standard of living (US\$75,000), more income brings little, if any, additional happiness. The happiness–income paradox exists in developed and developing countries (Easterlin et al. 2010). Average life satisfaction is higher in countries with greater GDP per capita (Sacks et al. 2010). In Asia, income plays a different role (Ngoo et al. 2015). Affective love of money motive indirectly taps on economists' notion concerning aspirations of money (Tang and Liu 2012).

We frame Monetary Intelligence in the context of decision-makers' satisfaction with life and pay and control GDP per capita at the macro-level and standardized income at the micro-level. Data from 6586 managers in 32

cultures<sup>2</sup> across six continents suggest that GDP per capita is related to life satisfaction, but not to pay satisfaction; income is related to both life and pay satisfaction. Counter-intuitively, GDP and income are not related to Factor Happiness (money makes people happy). Managers with low affective love of money motive, but high stewardship behavior and cognition have higher pay satisfaction than life satisfaction.

Our exploration across three GDP groups offers an interesting paradox: In high GDP (rich) entities, high income reduces aspirations (Rich, Motivator, and Power) and enhances stewardship behavior (Budget, Give/Donate, and Contribute) and a sense of Achievement. In low GDP (poor) entities, however, high income is associated with poor Budgeting skills and escalated feelings of Happiness. Managers with low love of money motive but high stewardship behavior enjoy higher quality of life than pay satisfaction in high and medium GDP entities, but equal satisfaction with pay and life in low GDP entities. We illustrate not only intrapersonal, interpersonal, and cross-cultural differences but also theoretical, empirical, and practical contributions to monetary intelligence, income, GDP, happiness, pay satisfaction, quality of life, and business ethics.

## Theory and Hypotheses

### Construct Conceptualization: Monetary Intelligence

Locke stated (1969, p. 334), the first question a scientific investigator must ask is not “how can I measure it?” but rather, “what *is* it?” In order to understand the construct clearly and achieve a solid construct conceptualization, researchers must first define a construct in unambiguous terms with a clear, concise conceptual definition and in a positive direction without circular or tautological argument (Edwards and Bagozzi 2000; Jarvis et al. 2003; MacKenzie et al. 2011). Monetary Intelligence (MI) is a type of social intelligence, similar to emotional intelligence (EI) (Engelberg and Sjöberg 2006; Fox and Spector 2000; Furnham et al. 2002; Goleman 1995; Mayer et al. 1999; Petrides and Furnham 2001; Wong and Law 2002), cultural intelligence (CI) (Earley and Mosakowski 2004), and coping intelligence (Srivastava and Tang 2015). The Multifactor Emotional Intelligence Scale and the Trait Emotional Intelligence meet the criteria of a standard intelligence scale (Mayer et al. 1999; Petrides et al. 2004).

Monetary Intelligence (MI), a multi-dimensional individual difference variable, represents ones' non-ability

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<sup>1</sup> “Happiness” is a sub-construct of MI.

<sup>2</sup> We treat China, Hong Kong, and Taiwan as separate geopolitical entities and use the terms geopolitical entities, countries, or cultures interchangeably.

disposition or personality trait with the ABC sub-constructs: (A) Affective—love of money motive, (B) Behavioral—stewardship behavior, and (C) Cognitive—meaning of money. MI theory asserts that individuals apply their money attitude to frame critical concerns in the context and strategically select certain options to achieve financial goals and ultimate happiness. “The three aspects, importance, motive, and aspiration, may have different causes and effects and thus need to be treated as separate variables” (Srivastava et al. 2001, p. 969). We follow Srivastava et al.’s advice, adopt a formative measurement model, explore the relative contribution of the ABC sub-constructs (antecedents) to Monetary Intelligence and its outcomes, satisfaction with pay and life (consequences), and briefly define these carefully selected sub-constructs, below.

### Affective Love of Money Motive

*Affective* responses are acquired through classical conditioning that occurs when a neutral and affective stimulus is present contiguously (Bagozzi et al. 1979). Children from poor economic backgrounds overestimate the size of a coin, compared to their affluent counterparts (Bruner and Goodman 1947). In dual-career families, college students’ money anxiety is influenced by both paternal and maternal money anxiety (Lim and Sng 2006). The affective component is related to the love vs. hate (or good vs. evil) emotional aspects of an attitude (Tang 1992b). Factors Rich, Motivator, and Importance define affective love of money *motive*, or aspirations of money.

In materialistic societies, most people love money and want to be **Rich**.<sup>3</sup> Very few hate money and want to be poor. To many, money is *metaphorically* a powerful, addictive, insatiable drug (Lea and Webley 2006) because drug addicts require larger dosages to maintain the same level of “high” (state of euphoria) or utility of money (hedonic treadmill). People earn more than they can consume (overearning) (Hsee et al. 2013). Money is a **Motivator** because nothing comes even close to money in improving performance (Gomez-Mejia and Balkin 1992; Jenkins et al. 1998; Locke et al. 1980; Tang et al. 2000). Money, as a tool, satisfies physical and psychological needs (Maslow 1954). Researchers explore the **Importance** of money (Mickel et al. 2003). Men rank pay fifth in importance, whereas women rank it seventh (Jurgensen 1978). Both men and women predict that to others, pay is the number one in importance. In 1990, among 11 work goals,

pay was ranked second in importance in Belgium, UK, and the USA and first in Germany (Harpaz 1990).

Kish-Gephart et al. (2010) examined behavioral ethics from three perspectives: bad apples (individual), bad cases (moral issue), and bad barrels (environment). In a recent cross-cultural study, Tang et al. (2015) frame “good” or “bad” barrels in the environmental context as a proxy of high or low probability (Kahneman 2011) of getting caught for dishonesty, respectively. They further theorize that the magnitude and intensity of the relationship between love of money and dishonesty reveal how individuals frame two levels of subjective norm—perceived corporate ethical values at the micro-level (CEV, Level 1) and Corruption Perceptions Index at the macro-level (CPI, Level 2). For the love of money construct, they included Factors Rich, Motivator, and Importance, discussed above, and also Power. They include Factor Power (discussed below) because power tends to corrupt, and absolute power corrupts absolutely (Lord Acton’s letter to Bishop Mandell Creighton in 1887). Across the global economic pyramid (Pralalad and Hammond 2002), money, power, and corruption do go hand in hand.

Results suggest that CPI has a strong impact on the magnitude of dishonesty, whereas CEV has a strong impact on the intensity of dishonesty. Managers in good barrels (high CEV/high CPI), mixed barrels (low CEV/high CPI or high CEV/low CPI), and bad barrels (low CEV/low CPI) display low, medium, and high magnitude of dishonesty, respectively. Moreover, with high CEV, the intensity is the same across cultures. With low CEV, however, the intensity of dishonesty is *the highest* in high CPI entities (risk seeking of high probability)—the Enron effect, but *the lowest* in low CPI entities (risk aversion of low probability). Managers in low CPI entities with low CEV have the highest magnitude but lowest intensity of dishonesty. These findings beg for explanations and further empirical investigations.

In summary, high love of money motive is significantly related to dishonesty and predicts cheating (Chen et al. 2014; Tang and Sutarso 2013). It is not the money, but the motive—using money for social comparison, seeking power, showing off, and overcoming self-doubt—that leads to low subjective well-being (Diener et al. 1999; Srivastava et al. 2001). Empirical results support the ancient wisdom: Whoever loves money never has enough; whoever loves wealth is never satisfied with their income.<sup>4</sup> We assert that high love of money motive contributes negatively to pay and life satisfaction.

<sup>3</sup> Those who want to get rich are falling into temptation and a trap and into many foolish and harmful desires, which plunge them into ruin and destruction. For the love of money is the root of all evils (1 Timothy 6: 9–10).

<sup>4</sup> Ecclesiastes 5: 10.

## Stewardship Behavior

People acquire behavioral tendencies (*conations*) by instrumental learning when an outcome or behavior is positively or negatively reinforced. Factors Make, Budget, Give/Donate Money, and Make Contribution stipulate *stewardship* behavior. People must make money legally, ethically, and wisely (**Make Money**).<sup>5</sup> Those who budget and save their money carefully (**Budget money**) have high satisfaction with life and pay (Luna-Arocas and Tang 2004) and low financial anxiety (Hayhoe et al. 1999; Tang and Gilbert 1995). Give money generously and donate money cheerfully to charities, or the poor and needy (**Give/Donate Money**)<sup>6</sup> promote happiness (Dunn et al. 2008, 2011) and create meaning in lives (Baumeister et al. 2013). The Scrooge effect suggests that mortality salience increases donations (Joireman and Duell 2007; Jonas et al. 2002). Old people focus more on budget and donate money than the young. Those who contribute significantly with talent, merit, and high quality of performance may share the Master's joy (The Matthew Effect) (**Make Contribution**)<sup>7</sup> (Judge et al. 2007; Tang 1996; Tang et al. 2002). NBA players with high scoring performance have high salaries (Wang 2009).

Merton (1968) discussed “the Matthew effect” in science: The pattern of recognition skewed in favor of the established scientists (the Nobel Prize winners) who are already famous. Eminent scientists develop a great sense of taste and judgment in seizing significant and *important* problems, focus on not just problem-solving but *problem-finding*, set their sights high, display a degree of venture-some fortitude, take risks, expand their access, maintain their conviction and prolonged commitment to the issue, and become prophets who can fulfill their own prophesy (Gu et al. 2015; Howard et al. 2015).

In his book, *the Protestant ethic and the spirit of capitalism*, Weber (1904/1905) argued that people work hard to please God, keep themselves occupied, make contributions, and promote prosperity (Furnham 1982; Luna-Arocas and Tang 2004; Tang 1992a, 1992; Tang and Baumeister 1984; Tang and Gilbert 1995; Tang and Tzeng 1992). In a cross-sectional study, Tang and Smith-Brandon (2001) compared

three groups of people in the USA: welfare recipients, welfare recipients in training programs, and employed past welfare recipients (individuals who get out of the welfare system and have full-time employment). Among them, employed past welfare recipients not only have the strongest belief that money is Good, not Evil, money represents Respect, Power, and they Budget money carefully, but also have more income, the highest endorsement of the Protestant work ethic and the highest self-esteem. Protestant economies prospered because instruction in reading the Bible generated the human capital crucial to economic prosperity (Becker and Woessmann 2009). Hard work leads to high income and satisfaction with work, pay, and promotion (Tang 1992b). People value what they own and create the “endowment effect” (Kahneman 2011). In short, good stewardship behavior<sup>8</sup> is positively related to subjective well-being (SWB)—high quality of life and satisfaction.

## Cognitive Meaning

Individuals acquire *cognitions* via the cognitive learning of persuasive communications. We selectively focus on Factors Happiness, Respect, Achievement, and Power. Researchers have debated the relationships between money and happiness (Diener and Biswas-Diener 2002; Tang 2007; Vohs and Baumeister 2011). In this study, we pay attention to **Happiness**—money makes people happy. Many argue that money makes people happy. Others suggest that although money does not always buy happiness (Csikszentmihalyi 1999; Easterlin 1995, 2001, 2006; Easterlin et al. 2010; Graham 2010), most act as if it does (Ahuvia 2008). High income improves evaluation of life but not emotional well-being (Kahneman and Deaton 2010). People in rich countries are happier than those in poor ones (Levy 2010).

Following motivator-hygiene theory, Achievement contributes to intrinsic motivation on a task and to high job satisfaction (Herzberg 1987; Ryan and Deci 2000). On the other hand, people, with excessively heavy emphasis on money as a sign of their achievement (**Achievement**), may experience low satisfaction with work, promotion, supervision, co-worker, and overall life satisfaction (Tang 1992b). Again, high aspirations reduce satisfaction. Money enhances self-esteem (Zhang 2009; Zhang and Baumeister 2006) and helps people gain recognition (**Respect**). Money is **Power** (Lemrová et al. 2014) in the context of materialism. It activates feelings of *self-sufficiency* (Vohs et al. 2006) and reduces physical pain (Zhou et al. 2009). Those with power have a greater capacity to control their own

<sup>5</sup> Remember then, it is the Lord, your God, who gives you the power to acquire wealth (Deuteronomy 8: 18). He who will not economize will have to agonize (Confucius, 551 BC–479 BC).

<sup>6</sup> It is more blessed to give than to receive (Acts 20: 35). God loves a cheerful giver (2 Corinthians 9: 7). Give and gifts will be given to you (Luke 6: 38).

<sup>7</sup> To anyone who has, more will be given, and he will grow rich; from anyone who has not, even what he has will be taken away (Matthew 13: 12). See also The Parable of the Sower (Matthew 13: 1–14), The Parable of the Talents (Matthew 25: 14–30), and The Parable of the Ten Gold Coins (Luke 19: 12–28).

<sup>8</sup> What your hands provide you will enjoy; you will be happy and prosper (Psalms 128: 2).

If a person gets his attitude toward money straight, it will help straighten out almost every other area in his life (Billy Graham).



resources and outcome and that of others, depend less on others, are more likely to satisfy their own needs and desires, and exploit others than those who do not (Malhotra and Gino 2011). Building instrumental ties with powerful people makes people feel dirty (Casciaro et al. 2014). Those with high value toward money as Power experience low satisfaction with work, pay, co-worker, and life satisfaction. Factors Achievement, Respect, and Power are correlated with high economic and political values, but low religious values (Tang 1992b).

Poverty consists, not in the decrease of one's possessions, but in the increase of one's greed (Plato, 427-347 BC). This notion is applicable to not only love of money motive (affect) but also cognitive meaning (cognition) because there is consistency between affect and cognition, and both are different from behavior (Fiske and Dupree 2014). In summary, the cognitive aspect of money may enhance satisfaction or subjective well-being to some extent, yet a high levels of aspiration regarding meaning of money (similar to affective love of money motive) may cause possible negative feelings of deficiency and lack of self-sufficiency (Vohs et al. 2006). As mentioned, lack of stewardship behavior and strong cognition contribute to low Monetary Intelligence which leads to unethical intentions and dishonesty (Tang and Sutarso 2013).

Monetary Intelligence, including the love of money construct, is one of the most well-developed and systematically used constructs of money attitude, mildly related to materialism (Belk 1985; Kasser 2002; Lemrová et al. 2014; Tang et al. 2014), and differs from *greed* (Cuzzolino et al. 2009). This construct has been substantiated in empirical studies across more than three dozen entities around the world (Erdener and Garkavenko 2012; Gbadamosi and Joubert 2005; Nkundabanyanga et al. 2011; Sardžoska and Tang 2009; Tang et al. 2006a, b, 2008, 2011, 2013; Wong 2008), applied in a different religion—Buddhist five precepts (Ariyabuddhiphongs and Hongladarom 2011) and marketing (Singhapakdi et al. 2013; Vitell et al. 2006), and cited in influential reviews (Dittmar et al. 2014; Kish-Gephart et al. 2010; Mickel and Barron 2008; Mitchell and Mickel 1999; Zhang 2009) and many textbooks (Colquitt et al. 2013; Furnham 2014; McShane and Von Glinow 2013; Milkovich et al. 2014; Rynes and Gerhart 2000; Scandura 2016). Attitudes predict behavior effectively only when there is a high correspondence between the attitude object and the behavioral option (Ajzen 2001; Grant 2008; Tang and Baumeister 1984). We now turn to our two outcome variables.

### Pay Satisfaction and Life Satisfaction

Economists tend to use the terms satisfaction and happiness interchangeably (Graham et al. 2004). We select

two *reflective* constructs: pay satisfaction and life satisfaction (Tang 2007) because both constructs are content-valid measures, related to subjective well-being/happiness (Frey and Stutzer 2002; Lyubomirsky et al. 2005; Ryan and Deci 2000; Seligman and Csikszentmihalyi 2000), and directly and indirectly related to the notion of money. Following equity model (Adams 1963) and discrepancy model (Huseman et al. 1987; Lawler 1971), “the idea that net satisfaction is a function of the perceived discrepancy or gap between what one has and wants is at least as old as the stoic philosophy of Zeno of Citium around 300 B.C.” (Michalos 1985, p. 348). Materialism leads to the dark side of the American dream (Kasser and Ryan 1993).

In cross-sectional studies at the individual level, happiness rises with income, and in time-series studies at the national level, happiness does not rise with income (Easterlin et al. 2010). “Subjective well-being is raised by actual income but lowered by aspiration income” (Knight and Gunatilaka 2012, p. 67). People adjust their aspirations upward in Easterlin's case and downward in Sen's (1990) case (Knight and Gunatilaka 2012). We posit that high desires for money (Rich, Motivator, and Importance) lead to many unfulfilled needs due to a large gap between wants and needs which may lead to high stress and low satisfaction. Following the notion that there is consistency between affect and cognition (Fiske and Dupree 2014), intuitively, those who do *not* value Happiness, Achievement, Respect, and Power may have high levels of satisfaction. Good stewards tend to enjoy high satisfaction with pay and life (Dunn et al. 2008, 2011). Individuals' low affective motive but high stewardship of money may lead to *high* Monetary Intelligence and satisfaction with pay and life. The difference between affective motive and stewardship behavior reflects the *intrapersonal* difference of Monetary Intelligence.

**Hypothesis 1** In our formative theoretical model, high stewardship behavior but low affective love of money motive define Monetary Intelligence, which, in turn, promotes high pay satisfaction and life satisfaction.

### Control Variables

We explore the extent to which GDP per capita and income are related to antecedents and consequences of our theoretical model (MI). There are small correlations between income and subjective well-being (SWB) within nations; these correlations appear to be stronger in poor nations (Boarini et al. 2006; Diener and Biswas-Diener 2002). In a given country, the rich are more satisfied with their lives than the poor. This relationship is similar in most countries

around the world. Income enhances SWB or happiness (Di Tella and MacCulloch 2010).

Individuals at the top of the global economic pyramid (with high GDP per capita) have higher income than those at the bottom (with low GDP per capita, significantly less than US\$75,000, Kahneman and Deaton 2010). We assert that those with higher income, in high GDP entities, are more likely to pay attention to their quality of life than pay satisfaction. The relationship between income and love of money is *negative* among highly paid professionals in Hong Kong, *nonsignificant* among adequately paid males and Caucasians, but *positive* among underpaid females and African-Americans in the US (Tang and Chiu 2003; Tang et al. 2005, 2006b). Following these arguments, high income reduces the utilities of money and one's affective motive or aspirations of money. Underpaid individuals suffer a great deal from financial hardship which enhances desires to become rich (Lim and Teo 1997). High love of money individuals select much higher standards for comparison which lead to lower pay satisfaction (Luna-Arocas and Tang 2015).

On the other hand, it is plausible that those with higher income, in the low GDP group, may endorse the notion that money leads to Happiness due to their downward adjustment of their aspirations (Sen 1990). Further, individuals weight upward comparisons more heavily than downward comparisons and gain utility from the ranked position of their income within a comparison group which predicts general life satisfaction (Boyce et al. 2010). There are large correlations between the wealth of nations and subjective well-being (SWB). Across countries, average life satisfaction is higher in countries with greater GDP per capita (Sacks et al. 2010). The effects of GDP change were weaker and significant only for life evaluations (Diener et al. 2013).

After controlling GDP per capita and income, we expect to have similar pattern of results for our formative model of Monetary Intelligence. After controlling income, treating GDP per capita as a moderator may reveal additional novel findings. We assert: People living in high GDP per capita countries have high income, high needs satisfaction, low aspiration for money, and a low affective love of money motive (cf. Wernimont and Fitzpatrick 1972) and are likely to pay more attention to their life satisfaction than pay satisfaction.

**Hypothesis 2** After controlling GDP per capita and income, we expect to have similar pattern of formation and consequence of Monetary Intelligence.

**Hypothesis 3** After controlling income, managers in high GDP per capita countries have high life satisfaction than pay satisfaction.

## Data Analysis Strategy

Scholars in social sciences have used a *reflective* model for attitudinal constructs. Recent developments in research methodology suggest that scholars may consider pay satisfaction not only as a reflective model but also as a formative model (Williams et al. 2003). Further, paths emanating from a misspecified construct may lead to Type I errors, whereas paths leading to a misspecified construct may lead to Type II error (Jarvis et al. 2003). We describe them below.

Using a *reflective* model (Fig. 1), we treat affective (motive), behavioral (stewardship), and cognitive (meaning) components of money attitude as an imperfect *reflection* of the underlying latent construct (not measured), Monetary Intelligence (MI). The indicators (items, measured) and the first- and second-order latent factors are viewed as manifestations of the third-order focal construct (MI). If we change the focal construct, we produce a change in *all* of its factors and items. Direct manipulation of a particular indicator will *not* have an effect on the latent variable (MI). The direction of the relationship flows from the latent construct to the indicators.

A *formative* third-order model (Fig. 2) treats items and the first- and second-order sub-constructs as a reflective model. At the sub-construct level, we consider motive, stewardship, and meaning of money conceptually as *distinguishable* perspectives, non-interchangeable defining characteristics, or *formative* indicators of the Monetary Intelligence. The elimination of any single sub-construct will restrict the overall construct in a significant way. The direction of the relationship is from sub-constructs to the MI construct. The construct “is nothing more than a label for its dimensions considered collectively” (Edwards 2011, p. 384). To achieve model identification, a formative construct must emit paths to at least two unrelated latent constructs with reflective indicators, theoretically appropriate reflective indicators, or one reflective indicator and one latent construct with reflective indicators (Jarvis et al. 2003).

## Method

### Sample and Procedure

Members of the research team adopted the English survey or translated it into their native language using the multi-stage translation/back-translation procedure (Brislin 1980). We collected data using a random sample of professional associations (Society for Human Resource Management), or a systematic snowball approach (using full-time managers in various MBA/PhD programs and their colleagues)

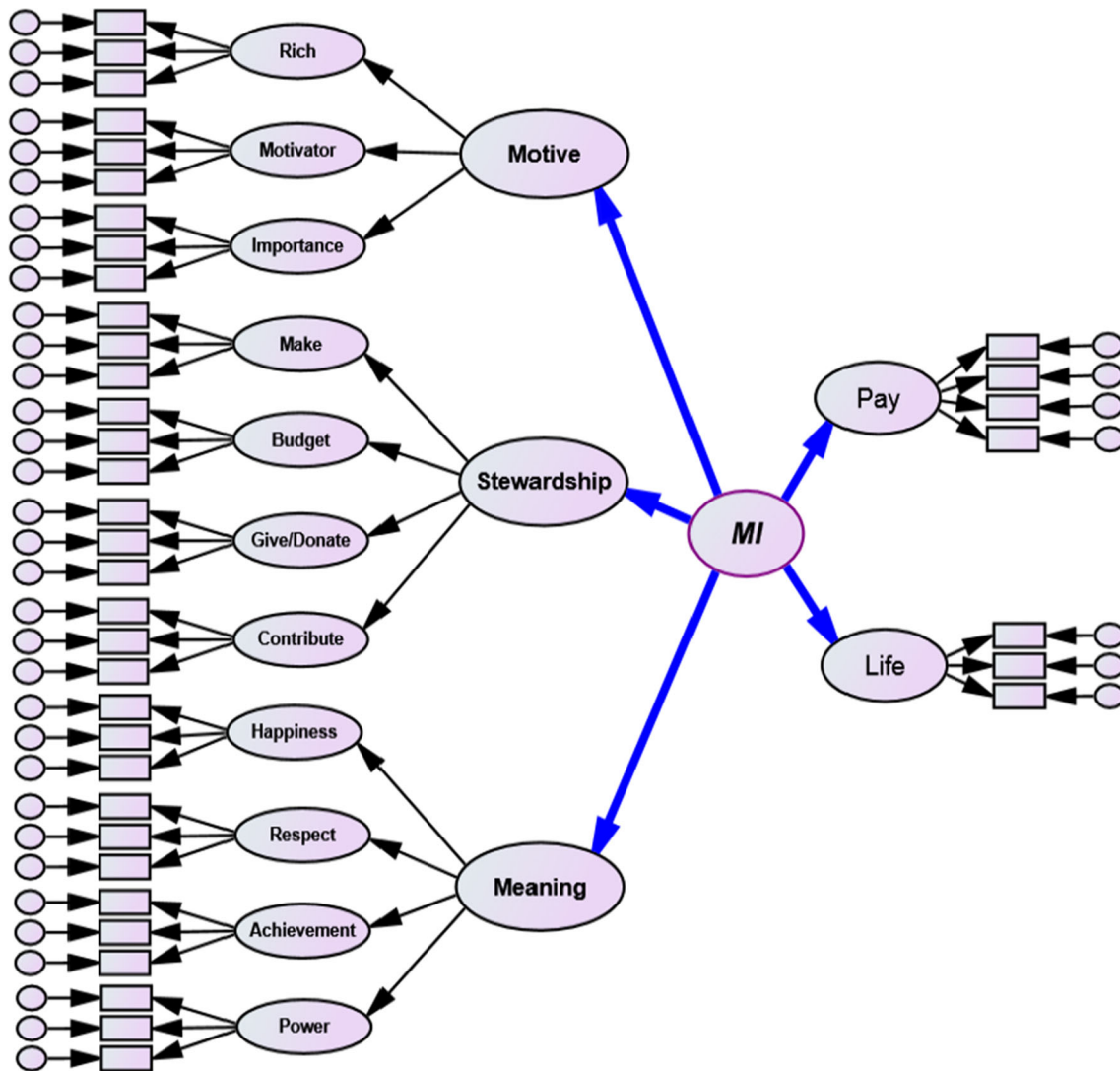


Fig. 1 Reflective measurement model of Monetary Intelligence with pay and life satisfaction

in a single or multiple cities in both public and private sectors. We developed a network of scholars in various cultures and did not select the geopolitical entities and the samples from entities randomly. Participants completed a survey voluntarily, anonymously and without financial rewards. For all the entities, the return rate varied between 45 and 100 %. We obtained data from 6586 managers in 32 geopolitical entities across six continents. Our average sample size (205.8/entity) offered reasonably normal distributions for our samples. Table 1 shows the mean, standard deviation, reliability estimates (Cronbach's alpha and composite reliability), and correlations of variables for the whole sample.

Managers were 34.66 years old, 50.6 % male, with 15.35 years of education, mostly in service (75 %) and private (59 %) organizations, and had job titles such as executive, senior manager, logistics coordinator,

accountant, financial director, product manager, sales manager, director of communication, engineer, R&D supervisor, HR manager, purchasing officer, and assistant marketing manager. With 7.34 years of work experiences (SD = 7.39) in current organizations and 12.44 years of career work experience (SD = 9.43), participants had enough experiences dealing with money-related constructs, pay satisfaction, and life satisfaction. Our one-way analysis of variance (ANOVA) of managers' income across three GDP groups was significant ( $F(2, 5654) = 589.12, p = .000, N = 5657$ , due to missing data). Based on Tukey's post hoc test, differences in income across the three groups were significant: high GDP ( $M = 23,482.83, SD = 22,402.93, n = 2360$ ), median GDP ( $M = 13,086.91, SD = 15, 434.09, n = 1982$ ), and low GDP ( $M = 5143.62, SD = 6769.33, n = 2244$ ). The sample sizes across three GDP groups were very similar.

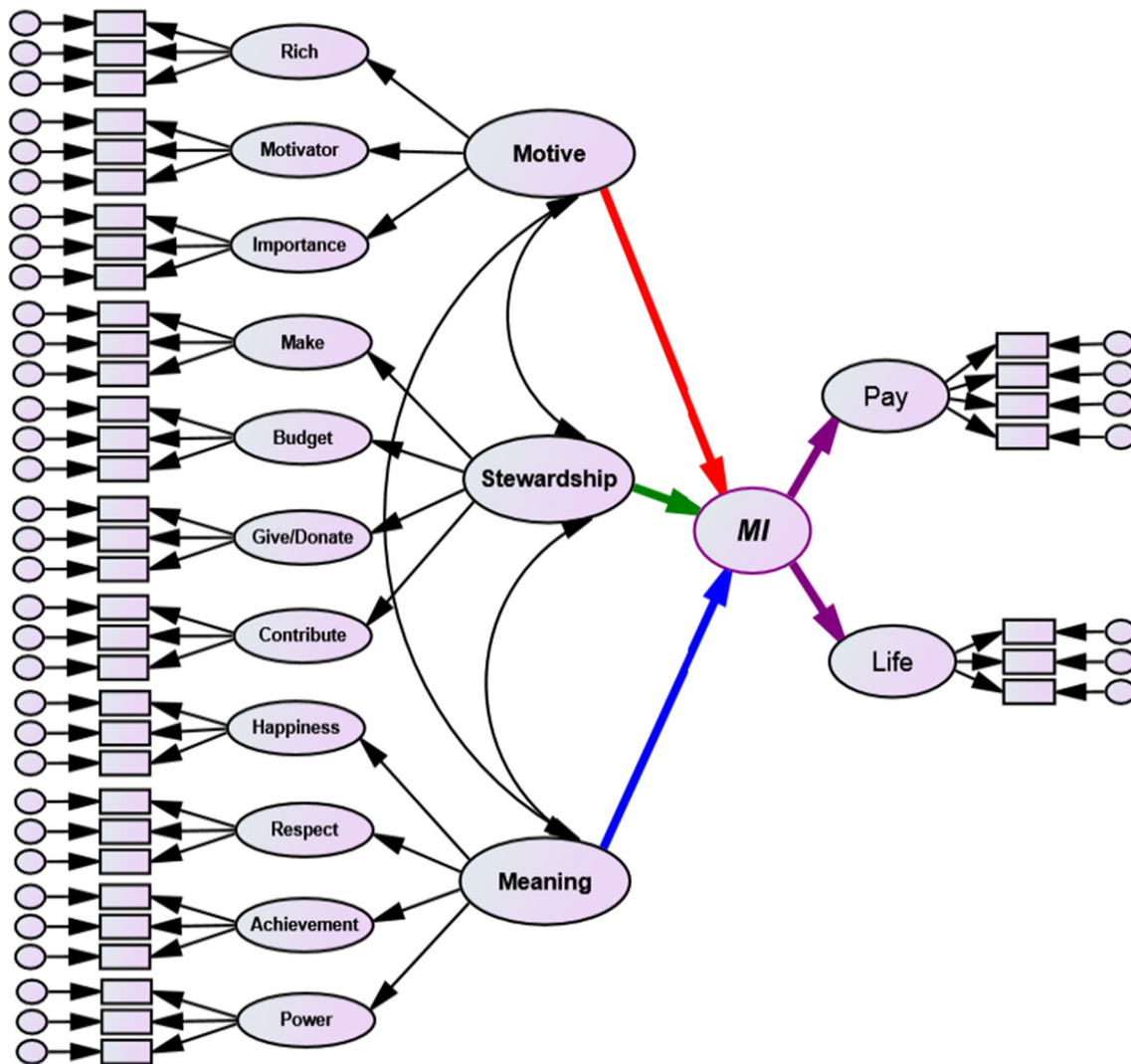


Fig. 2 Formative measurement model of Monetary Intelligence with pay and life satisfaction

### Measures

We presented our three measures (monetary intelligence, pay satisfaction, and life satisfaction) on different pages of a six-page survey with many filler constructs and items. We selected the 33-item, 11-factor Monetary Intelligence Scale based on our theory and the literature (Chen et al. 2014; Tang 1992b; Tang and Chiu 2003; Tang and Sutarso 2013). We used a 5-point Likert scale with *strongly disagree* (1), *disagree* (2), *neutral* (3), *agree* (4), and *strongly agree* (5) as scale anchors. We adopted 18-item, 4-factor Pay Satisfaction Questionnaire (PSQ) with Factors Pay Level, Raise, Benefits, and Pay Administration (Heneman and Schwab 1985; Judge and Welbourne 1994) and the following anchors: *strongly dissatisfied* (1), *dissatisfied* (2), *neutral* (3), *satisfied* (4), and *strongly satisfied* (5). Sample items include: My take-

home pay, my most recent raise, my benefit package, and the organization's pay structure. Life satisfaction (LS) was measured with three items similar to those in the United States' General Social Survey (GSS) conducted by the National Opinion Research Center since 1972 with *very dissatisfied* (1), *dissatisfied* (2), *neutral* (3), *satisfied* (4), and *very satisfied* (5) as anchors (Easterlin 2001): my work/family/personal life in general (LS1), my life as a whole these days (LS2), and my overall life satisfaction (LS3). Due to our large sample size at the entity level, we selected World Bank's Gross Domestic Product (GDP) *per capita* and assigned the entity's score to all participants in that entity. For the whole sample, there was no difference ( $t = .330, p > .05$ ) between the average self-reported income at the country level (\$14,199.15) and World Bank's GDP *per capita* (\$14,308.71) and the correlation between the two was significant ( $r = .49$ ,



**Table 1** Mean, SD, Cronbach's alpha, composite reliability, and correlations of variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Gender (% male)	.51	.50									
2. Age	34.66	9.87	.13**								
3. GDP (US\$)	14,308.71	12,479.93	-.03**	-.05**							
4. MI— affective	3.67	.66	.08**	-.05**	-.06**						
5. MI— cognitive	2.98	.71	.10**	.00	-.09**	.59**					
6. MI— behavioral	3.51	.55	.07**	.02	-.16**	.30**	.26**				
7. MI	2.60	.27	.06**	.05**	-.14**	-.09**	.57**	.65**			
8. Pay	2.93	.74	.05**	-.03*	.02	-.01	.10**	.25**	.26**		
9. Life	3.72	.80	-.03*	.01	.03*	-.02	-.06**	.25**	.13**	.35**	
Cronbach's $\alpha$						.85	.86	.76	.89	.94	.86
Composite reliability						.84	.77	.83	.84		

$N = 6586$ . Gender: male = 1, female = 0. MI = (affective—reversed + cognitive + behavioral)/3. \*  $p < .05$ ; \*\*  $p < .01$ . Composite reliability = (sum of standardized loading)<sup>2</sup> / {(sum of standardized loading)<sup>2</sup> + sum of indicator measurement error}. Indicator measurement error = 1 - (standardized loading)<sup>2</sup>

$p < .001$ ). Our income data show that our samples represent the population well.

## Results

### Descriptive Statistics

Cronbach's alpha measures how well a set of items measures a single unidimensional latent construct. For formative models, composite reliability estimates the extent to which a set of latent construct indicators share in their measurement of a construct (Jarvis et al. 2003). We provided Cronbach's alpha and composite reliability for the overall MI construct, .89 and .84, respectively, and alpha for sub-constructs (see Table 1). Monetary Intelligence was significantly related to gender (male), age, low GDP and low motive, but high levels of meaning, stewardship, pay satisfaction, and life satisfaction. Older people had low love of money motive and low pay satisfaction. GDP was related to high life satisfaction, but not related to pay satisfaction.

### Confirmatory Factor Analysis

We test our 33-item, 11-factor Monetary Intelligence with three sub-constructs using confirmatory factor analyses (CFA). We use the following criteria for evaluating CFA and configural invariance (passing 4 out of 6 criteria): (1) Chi-square and degrees of freedom ( $\chi^2/df$ ), (2) incremental fit index (IFI > .90), (3) Tucker–Lewis index (TLI > .90), (4) comparative fit index (CFI > .90), (5) standardized root mean square residual (SRMSR < .10), and (6) root mean

square error of approximation (RMSEA < .10) (Vandenberg and Lance 2000). We achieve metric invariance when the differences between unconstrained and constrained multi-group confirmatory factor analyses (MGCFAs) are not significant ( $\Delta CFI/\Delta RMSEA \leq .01$ , Cheung and Rensvold 2002). Table 2 shows a good fit between our measurement model and our data for the whole sample (Model 1). Since we had data from 32 geopolitical entities, we compared our measurement model across three GDP groups using a three-way split: (1) high: GDP > \$17,000,  $n = 2360$ ; nine entities: Australia, Belgium, France, Hong Kong, Italy, Portugal, Singapore, Spain, and the USA; (2) medium:  $16,986 \geq \text{GDP} \geq 5042$ ,  $n = 1982$ ; 11 entities: Croatia, Hungary, Malta, Malaysia, Mexico, Oman, Slovenia, South Africa, South Korean, Taiwan, and Turkey; and (3) low: GDP < \$5040,  $n = 2244$ ; 12 entities: Brazil, Bulgaria, China, Democratic Republic of Congo, Egypt, Macedonia, Nigeria, Peru, the Philippines, Romania, Russia, and Thailand. We achieved configural (factor structure) invariance for the high, medium, and low GDP groups (Models 2, 3, and 4) and metric (factor loading) invariance due to nonsignificant differences between the measurement models without and with the constraints (setting all factor loadings to be equal across three GDP groups) (Models 5 vs. 6). For the 18-item, 4-factor Pay Satisfaction Questionnaire, we presented results in Models 7 to 12. In both cases (MI and PSQ), the fit indices of the low GDP group were lower than those of the other two groups. We achieved configural and metric invariance across GDP groups for both MI and PSQ.

RMSEA tends to overreject a true model due to “small sample size” and “model complexity” (Tang et al. 2006a, p. 446). In order to maintain a good sample size to item



**Table 2** CFA results

Model	$\chi^2$	df	p	$\chi^2/df$	IFI	TLI	CFI	SRMR	RMSEA	Models	$\Delta$ CFI	$\Delta$ RMSEA
1. MI whole	7226.30	481	.000	15.02	.93	.92	.93	.05	.05			
2. MI high GDP	2965.04	481	.000	6.16	.93	.93	.93	.06	.05			
3. MI medium GDP	2797.80	481	.000	5.82	.90	.89	.90	.06	.05			
4. MI low GDP	4272.73	481	.000	8.88	.89	.88	.88	.08	.06			
5. MI 3 GDP	10,035.57	1443	.000	6.95	.91	.90	.91	.06	.03			
6. MI 3 GDP + constraints	10,657.59	1487	.000	7.17	.90	.90	.90	.06	.03	5 versus 6	.01	.00
7. PSQ whole	5852.57	131	.000	44.68	.92	.91	.92	.04	.08			
8. PSQ high GDP	1324.80	131	.000	10.11	.96	.95	.96	.03	.06			
9. PSQ medium GDP	1505.19	131	.000	11.49	.93	.91	.93	.04	.07			
10. PSQ low GDP	4211.58	131	.000	32.15	.87	.84	.87	.07	.11			
11. PSQ 3 GDP	7041.36	131	.000	17.92	.92	.90	.92	.03	.05			
12. PSQ 3 GDP + constraints	7402.15	131	.000	17.58	.91	.90	.91	.04	.05	11 versus 12	.01	.00
<i>MI, pay, and life</i>												
13. Reflective	11,231.73	727	.000	15.45	.91	.91	.91	.07	.05			
14. Formative	9926.16	724	.000	13.71	.92	.92	.92	.06	.04	13 versus 14	.01	.01
15. Reflective + CMV	8036.80	687	.000	11.70	.94	.93	.93	.04	.04	13 versus 15	.02	.01
16. Formative + CMV	9388.68	685	.000	13.71	.93	.92	.93	.06	.04	14 versus 16	.01	.00

Sample size: whole = 6586, high GDP = 2360, medium = 1982, low = 2244

ratio and reduce model complexity for the whole sample and subsequent multiple-group analyses across subgroups of several variables, we established a parsimonious model (Figs. 1, 2) using 40 items instead of 54 indicators. We included all 33 items for MI, 3 items for life satisfaction, and 4 parcels for PSQ (Pay Level, Raise, Benefits, and Pay Administration). The sample size to item ratio was 165 (6586/40 = 164.65). We incorporated the reliability of each parcel (Pay: Cronbach's alpha = .90). In our SEM model, the path from the PSQ construct to its measured variable (Factor Pay), .95, equals the square root of the reliability of the measured variable (.90), while the amount of random error to the measured variable (Factor Pay) is the quantity one minus the reliability (.10 = 1-.90). We prepared our Models 13 and 14, accordingly.

### Common Method Variance (CMV)

The common method variance (CMV) problem may have been overstated and reached the status of urban legend (Spector 2006). To *deliberately* avoid the CMV bias (Podsakoff et al. 2003), we obtained data using different scale anchors for predictors and criterion. We examined CMV in two steps. First, Harman's single-factor test examines the un-rotated factor solution involving all items of interest in an exploratory factor analysis (EFA). Results showed 12 factors with eigenvalues greater than one. We

listed the scale and the amount of variance explained (total = 70.17 %) below: Monetary Intelligence (7.87 %), PSQ and life satisfaction (4.44 %), PSQ (2.64 %), life satisfaction (2.16 %), and items with cross loading (1.82 %, 1.68 %, 1.47 %, 1.35 %, 1.30 %, 1.16 %, 1.12 %, and 1.06 %), demonstrating *three separate* constructs.

Second, with a latent CMV factor, the variance of the responses to a specific item is partitioned into three components: (1) trait, (2) method, and (3) random error (Podsakoff et al. 2003). We compared (1) the measurement model *without* the CMV with (2) the measurement model *with* the addition of an unmeasured latent common method variance (CMV) factor. Our model *with* CMV *did improve* the fit over our measurement model *without* a CMV factor for only the *reflective* models (Models 13 vs. 15) ( $\Delta$ CFI = .02 > .01,  $\Delta$ RMSEA = .01), but *not* for our *formative* models (Models 14 vs. 16) ( $\Delta$ CFI = .01,  $\Delta$ RMSEA = .00) (Cheung and Rensvold 2002). Since we focus on only our formative model, not reflective model (Models 13 vs. 14, discussed below) in this study, CMV is not a serious threat to the present study.

### Reflective Versus Formative Models

Table 3 shows the individual items of Monetary Intelligence. Our formative model was superior to the reflective model (Table 2, Models 13 and 14;  $\Delta\chi^2/\Delta df = 1305.57/3$ ).

**Table 3** Reflective and formative models of MI with pay satisfaction and life satisfaction (whole sample)

	$\alpha$	Reflective factor loading			Formative factor loading		
		1st	2nd	3rd (MI)	1st	2nd	3rd (MI)
I. The affective motive of money (why)				.96			-.60
Rich	.84		.78			.78	
1. I want to be rich	.81					.81	
2. It would be nice to be rich	.79					.79	
3. Having a lot of money (being rich) is good	.78					.78	
Motivator	.85		.73			.73	
4. Money reinforces me to work harder	.87					.87	
5. I am motivated to work hard for money	.83					.83	
6. I am highly motivated by money	.72					.72	
Importance	.77		.68			.68	
7. Money is valuable	.77					.77	
8. Money is important	.69					.69	
9. Money is good	.71					.71	
II. The behavioral stewardship of money (how)				.58			.74
Make money	.72		.77			.67	
10. I find smarter and better ways of making money	.79					.80	
11. I look for new and legal ways to make money	.73					.72	
12. I am proud of my ability to make money	.53					.53	
Budget money	.81		.46			.49	
13. I budget my money very well	.84					.84	
14. I use my money very carefully	.81					.81	
15. I am proud of my ability to save money	.66					.66	
Give/donate money to charity	.76			.33			.42
16. I give generously to charitable organizations	.85					.84	
17. I believe in charitable giving	.63					.64	
18. I give money to the Church (religious organizations)	.70					.70	
Contribute-the Matthew Effect	.79		.39			.42	
19. More money should be paid to people with higher quality of performance	.85					.85	
20. More money should be paid to people with more talent	.63					.63	
21. More money should be paid to people with higher merit (performance)	.78					.78	
III. The cognitive meaning of money (what)				.82			.22
Happiness	.62		.81			.81	
22. Money can buy happiness	.63					.63	
23. Money makes me feel happy	.78					.78	
24. Money makes life a lot easier	.44					.44	
Respect	.81		.78			.78	
25. Money makes people respect me in the community	.86					.86	
26. Money helps me gain respect	.72					.72	
27. Money allows me to express myself	.74					.74	
Achievement	.89		.73			.73	
28. Money represents my achievement	.91					.91	
29. Money is a symbol of my success	.82					.82	
30. Money reflects my accomplishments	.84					.84	
Power	.65		.64			.64	
31. Money is power	.79					.79	
32. Money gives one considerable power	.69					.69	
33. Money controls and manipulates your behavior, when you are paid	.43					.43	

**Table 3** continued

	$\alpha$	Reflective factor loading			Formative factor loading		
		1st	2nd	3rd (MI)	1st	2nd	3rd (MI)
Motive of money ↔ meaning of money					.79		
Motive of money ↔ stewardship of money					.56		
Meaning of money ↔ stewardship of money					.44		
MIS → pay; MIS → life	.09	.01			.64	.60	

Reflective ( $N = 6586$ ):  $\chi^2 = 11,231.73$ ,  $df = 727$ ,  $p < .001$ ,  $\chi^2/df = 15.45$ , IFI = .91, TLI = .91, CFI = .91, SRMR = .07, RMSEA = .05  
 Formative:  $\chi^2 = 9926.16$ ,  $df = 724$ ,  $p < .001$ ,  $\chi^2/df = 13.71$ , IFI = .92, TLI = .92, CFI = .92, SRMR = .06, RMSEA = .04

First, for our **reflective** model, MI had the highest factor loading for affect (.96,  $p < .001$ ), followed by the cognition (.82) and behavior (.58). MI was positively related to pay satisfaction (.09), but not related to life satisfaction (.01). Alternatively, we might consider MI has five components in this reflective model. For the affective love of money sub-construct, we presented factor loadings in descending order: Factors Rich (.78), Motivator (.73), and Importance (.68), supporting previous findings in the literature (Tang and Chen 2008).

Second, our third-order **formative** model showed that stewardship behavior (.74), affective motive (−.60), and cognitive meaning (.22) contributed significantly to MI. Pairwise parameter comparisons (Table 5) showed that difference between the three paths was significant (behavioral (.74) vs. cognitive (.22):  $Z = 8.271$ ,  $p < .001$ ; cognitive (.22) vs. affective (−.60):  $Z = 6.900$ ,  $p < .001$ ). MI was more significantly associated with pay satisfaction (.64) than with life satisfaction (.60) ( $Z = -3.051$ ,  $p < .01$ ), supporting Hypothesis 1. Due to the negative path from affective to MI, we calculated the MI score by reversing the affective motive score first and then averaging all three sub-constructs (Table 1). In summary, our Monetary Intelligence has strong reliability (Table 1) and validity (Table 3). Our formative model allows us to inspect the correlations among the sub-constructs: affect–behavior (.79), affect–cognition (.56), and behavior–cognition (.44) (Table 3), suggesting no major overlaps among constructs ( $r < .80$ ).

**Control Variables**

In order to maintain a good sample size to item ratio and reduce model complexity (Tang et al. 2006a), we developed a parsimonious formative model involving (1) 11 parcels and three sub-constructs for MI, (2) four parcels for PSQ, and (3) three items for life satisfaction (LS). For each control variable, we drew 13 paths emanating from the

control variable to 11 factors of MI, PSQ, and LS, i.e., a total of 26 additional paths to our model.

Results of our final formative model are presented in Table 4 and Fig. 3 ( $\chi^2 = 3160.23$ ,  $df = 138$ ,  $p < .001$ ,  $\chi^2/df = 22.90$ , NFI = .93, IFI = .93, TLI = .90, CFI = .93, RMSEA = .06). We summarize our results regarding control variables in Table 5 and briefly present them below. GDP per capita was negatively and significantly related to all factors of MI, but not to Motivator and Happiness. GDP was positively related to life satisfaction, but not to pay satisfaction. Income was positively related to Give/Donate and Contribute, negatively related to Motivator and Power, and unrelated to other factors. Interestingly, high income was related to high pay and high life satisfaction, as expected. GDP and income were *not* related to Factor Happiness (money makes people happy). After controlling GDP per capita and Z income, our model suggested that low affective motive (−.60), high stewardship behavior (.79), and moderate cognitive meaning (.19) define MI which is significantly related to higher pay satisfaction (.62) than life satisfaction (.60), supporting Hypothesis 1. Interestingly, Motive and Cognition are highly correlated (.79), yet Motive (−.60) and Cognition (.22) contribute negatively and positively to MI (Fig. 3), respectively.

**Across Three GDP Groups**

In our subsequent analysis, we deleted GDP as a control variable from our theoretical model and then tested our model across three GDP groups ( $\chi^2 = 4344.79$ ,  $df = 396$ ,  $p < .001$ ,  $\chi^2/df = 10.97$ , NFI = .91, IFI = .92, TLI = .88, CFI = .92, RMSEA = .04); see Figs. 4, 5, and 6. Table 5 presents regression weights from income (Z income) to all 11 factors of MI.

For managers in the high GDP group (Fig. 4), higher income is negatively related to Rich, Motivator, and Power, but positively related to Budget, Give/Donate, Contribute, and Achievement. High income’s power to reduce affective love of money motive (aspirations of money) supports the findings of Tang and Chiu (2003). Further, income is negatively related to

**Table 4** Major results (standardized regression weights) of our theoretical model

1. Major findings: whole sample				
$\chi^2 = 3160.23, df = 138, p < .001, \chi^2/df = 22.90, NFI = .93, IFI = .93, TLI = .90, CFI = .93, RMSEA = .06$				
Motive → MI	-.60***	1. MI → pay satisfaction	.62***	Pair-wise comparison 1 versus 2***
Stewardship → MI	.79***	2. MI → life satisfaction	.60***	
Meaning → MI	.19***	3. GDP → pay satisfaction	.01	3 versus 4 ns
Motive ↔ stewardship	.54***	4. GDP → life satisfaction	.03*	
Motive ↔ meaning	.79***	5. Income → pay satisfaction	.19***	5 versus 6***
Stewardship ↔ meaning	.43***	6. Income → life satisfaction	.09***	
2. High GDP				
$\chi^2 = 4344.79, df = 396, p < .001, \chi^2/df = 10.97, NFI = .91, IFI = .92, TLI = .88, CFI = .92, RMSEA = .04$				
Motive → MI	-.50***	1. MI → pay satisfaction	.45***	1 versus 2**
Stewardship → MI	.61***	2. MI → life satisfaction	.63***	
Meaning → MI	-.02			
Motive ↔ stewardship	.66***			
Motive ↔ meaning	.83***	3. Income → pay satisfaction	.22***	3 versus 4***
Stewardship ↔ meaning	.49***	4. Income → life satisfaction	.12***	
Medium GDP				
Motive → MI	-.31***	1. MI → pay satisfaction	.40***	1 versus 2***
Stewardship → MI	.65***	2. MI → life satisfaction	.79***	
Meaning → MI	-.12			
Motive ↔ stewardship	.47***			
Motive ↔ meaning	.82***	3. Income → pay satisfaction	.15***	3 versus 4***
Stewardship ↔ meaning	.24***	4. Income → life satisfaction	.06*	
Low GDP				
Motive → MI	-.36***	1. MI → pay satisfaction	.71***	1 versus 2 ns
Stewardship → MI	.74***	2. MI → life satisfaction	.69***	
Meaning → MI	.19***			
Motive ↔ stewardship	.51***			
Motive ↔ meaning	.74***	3. Income → pay satisfaction	.17***	3 versus 4***
Stewardship ↔ meaning	.48***	4. Income → life satisfaction	.10***	

$N = 6586$ . \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Motivator, Budget, and Power in the medium GDP group (Fig. 5). It is positively related to Happiness, but negatively related to Budget in the low GDP group (Fig. 6). With high income, managers Budget money carefully (good stewards) in the high GDP group, but do not do that in medium and low GDP groups. Income is related to Happiness only in low GDP group. Further, high income is more strongly related to pay and life satisfaction in the medium GDP group (.22 and .12) than that in the high (.19 and .09) and low GDP groups (.15 and .06), relatively speaking. After controlling for income, high Behavior and low Affect contribute to MI, consistently, across cultures, but Cognition is nonsignificant. Interestingly, managers in the high and medium GDP countries have higher quality of life than pay satisfaction, whereas those in the low GDP group are equally satisfaction with pay and life, supporting Hypotheses 2 and 3.

## Discussion

In this study, we frame Monetary Intelligence in the context of pay and life satisfaction. We collected from 6586 managers in 32 geopolitical entities across six continents. After controlling for money at the macro-level (GDP per capita) and the micro-level (Z income), managers with high Monetary Intelligence have higher pay satisfaction than life satisfaction. We also investigate the same theoretical model across three GDP groups. We illustrate not only intrapersonal, interpersonal, and cross-cultural differences but also theoretical, empirical, and practical contributions to Monetary Intelligence, income, GDP, happiness, pay satisfaction, quality of life, and business ethics.

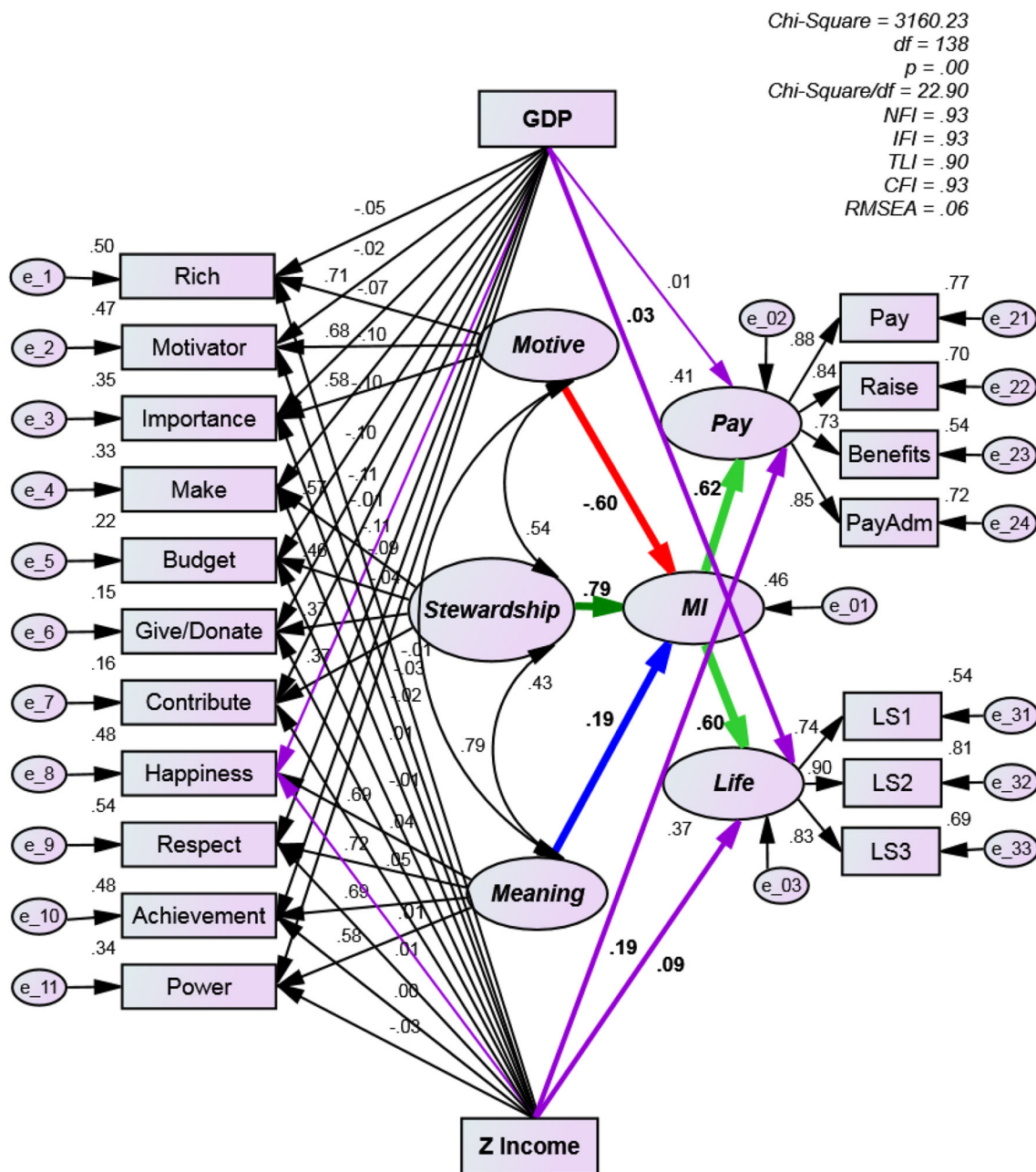


Fig. 3 Parsimonious model of Monetary Intelligence, pay satisfaction, and life satisfaction: GDP and income as control variables

### Theoretical Contributions

First, we carefully developed a *formative* theoretical model and frame Monetary Intelligence (MI) in the context of two dimensions of subjective well-being: satisfaction with pay and life. For the control variables, GDP per capita is related to life satisfaction (Sacks et al. 2010), but not to pay satisfaction. Individual income is related to both life and pay satisfaction (Boarini et al. 2006; Diener and Biswas-Diener 2002). Our unique findings suggest that neither GDP nor income is related to the notion that money makes people

happy. Future researchers must empirically explore this issue further.

Second, Affect and Cognition are highly correlated ( $r = .79$ , Fig. 3—the double arrow). Using our formative model, Affect negatively ( $-.60$ ) but Behavior (.79) and Cognition (.19) positively contribute to MI. All ABC sub-constructs make separate, independent, and unique contributions to Monetary Intelligence and our understanding of pay satisfaction (.62) and quality of life (.60). Affect, behavior, and cognition are conceptually distinguishable, non-interchangeable, and defining characteristics of the



**Table 5** Regression weights for the path from control variables (GDP and income) to factors of Monetary Intelligence

MI factors	Control variables				
	Whole sample		High GDP	Medium GDP	Low GDP
	GDP	Income	Income	Income	Income
1. Affective					
Rich	-.049***	-.007	-.048*	-.011	.040
Motivator	-.019	-.033**	-.041*	-.060**	-.003
Importance	-.071***	-.019	-.025	-.030	-.004
2. Behavioral					
Make	-.101***	.012	.027	.020	-.011
Budget	-.098***	-.010	.056**	-.045*	-.050*
Donate	-.102***	.035**	.065**	.017	.022
Contribute	-.112***	.051***	.095***	.031	.026
3. Cognitive					
Happiness	-.008	.013	-.018	-.002	.052*
Respect	-.107***	.015	.010	.024	.010
Achievement	-.095***	.004	.039*	-.013	-.018
Power	-.039**	-.026*	-.041*	-.045*	.004

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Monetary Intelligence. Together, they form the aggregate of MI. Higher pay satisfaction than life satisfaction signals ones' intrapersonal differences.

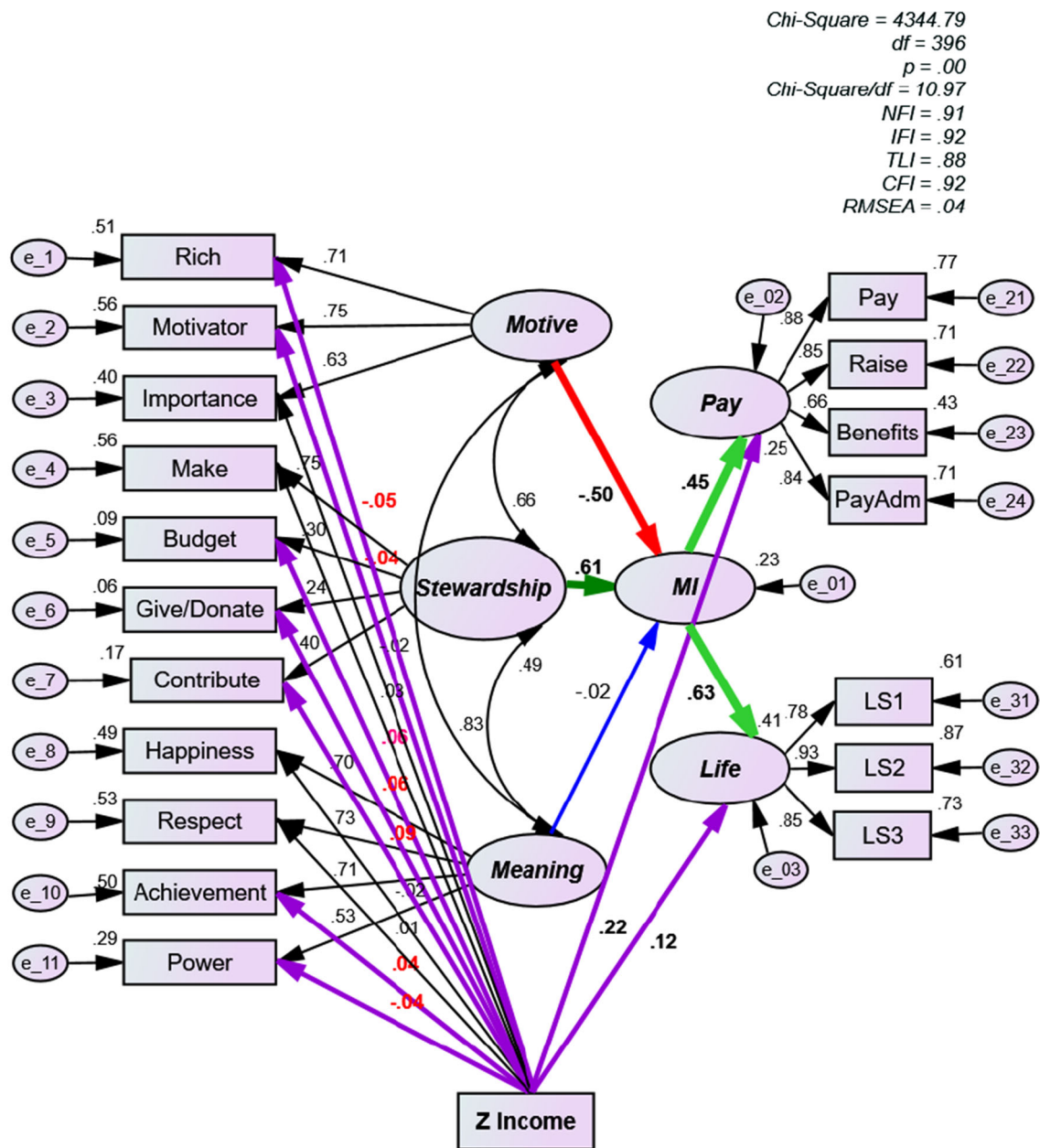
Third, the behavioral component reveals the strongest contribution to MI, supporting the literature. With high endorsement of the Protestant work ethic, many work hard, get out of the welfare system, and become contributing members of the society (Tang and Smith-Brandon 2001), supporting the Matthew effect (Judge et al. 2007; Merton 1968; Tang et al. 2002). People must Budget money carefully and save money. Some tend to earn more than they need (Hsee et al. 2013). High income contributes to high satisfaction. Giving money away and cheerfully donating money to charity contribute to happiness and provide meaning in our lives (Baumeister et al. 2013; Dunn et al. 2008). We must become masters (good stewards) of money, manage our talent, time, and treasure, and make contributions to the society.

Fourth, our multiple-group analysis across the three GDP groups provides exciting new discoveries. Interestingly, regarding income, high-income managers in the richest (high GDP entities) cultures not only reduce aspirations of money (Rich, Motivator, and Power) but also enhance their stewardship behavior (Budget, Give/Donate, and Contribute) and cognition (Achievement). It should be noted that Factors Rich and Motivator belong to the affective love of money motive, whereas Factors Achievement and Power fit the cognitive meaning. Our research suggests that in the context of satisfaction with

pay and life, Factors Rich, Motivator, and Power seem to work well together. It is practical to combine Factors Rich, Motivator, and Power as defining constructs of affective love of money motive (cf. Tang et al. 2015). Factor Importance becomes less important, nevertheless. In addition, high income is related to Factors Budget, Give/Donate, and Contribute, but not to Factor Make money. This message suggests that what we do with the money is probably more important than making money itself. Income signals Achievement (Tang 1992b), but not Respect nor Happiness. For the theoretical model, high Behavior and low Affect contribute to MI and higher quality of life than pay satisfaction. Satisfaction of basic needs (Maslow 1954) enables them to focus on quality of life.

Fifth, Tang and Sutarso (2013) studied temptation, MI, and dishonesty. Cognition positively (.34) and Behavior negatively (-.15) contribute to poor MI which, in turn, leads to dishonesty. Taken together, positive stewardship behavior contributes to subjective well-being (the bright side), whereas negative stewardship behavior contributes to dishonesty (the dark side).

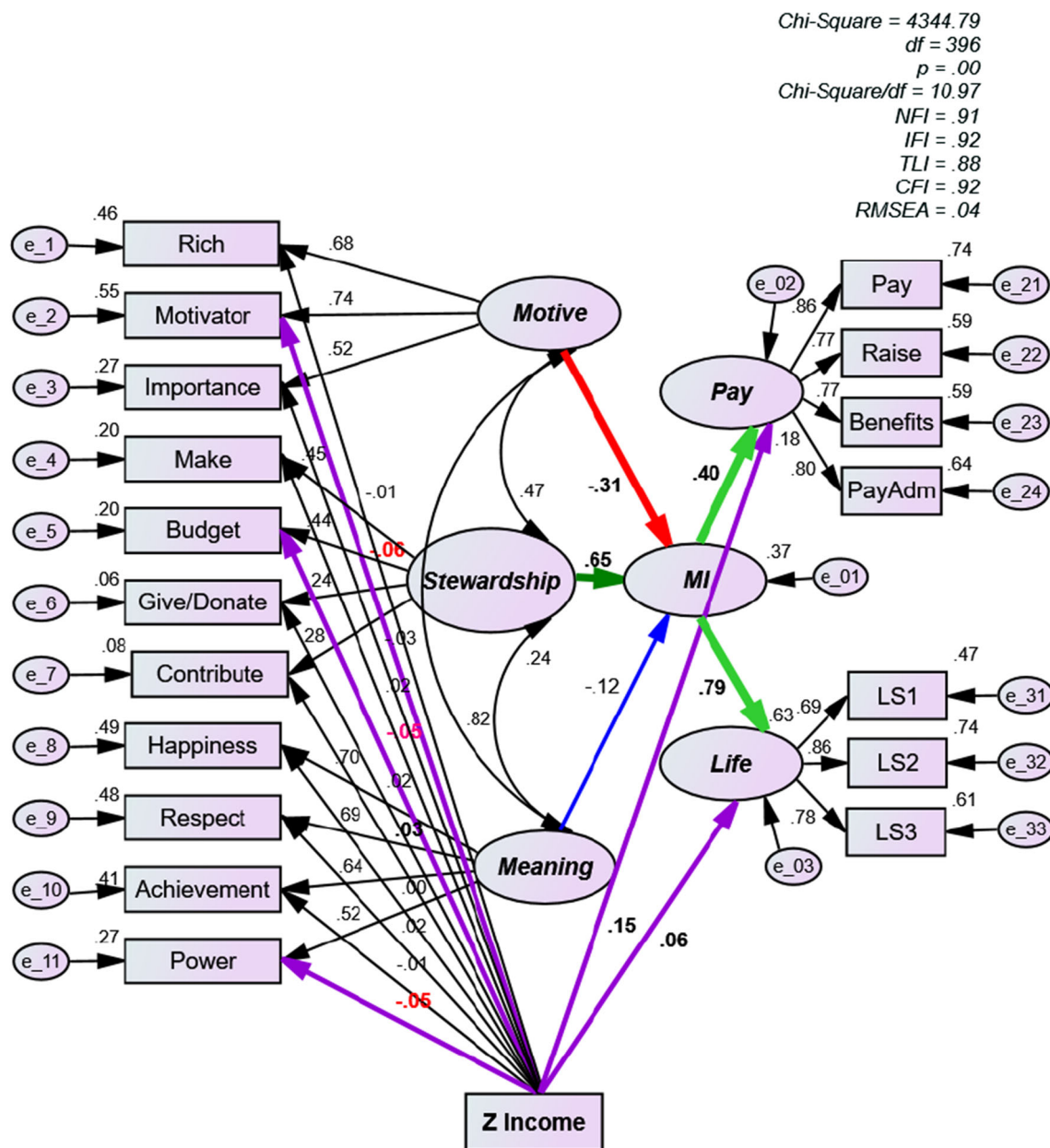
Sixth, Tang et al. (2015) explored effects of love of money motive and two levels of social norm—CEV at the micro-level and Corruption Perceptions Index (CPI) at the macro-level—on dishonesty. Clearly, GDP per capita is significantly correlated with CPI ( $r = .88, p < .01$ ). Rich countries have low level of corruption. Interestingly, entities in (1) the high GDP group examined in the present



**Fig. 4** Parsimonious model of Monetary Intelligence, pay satisfaction, and life satisfaction: income as a control variable (The high GDP group)

study and (2) the high CPI group in Tang et al.'s (2015) article are exactly the same. Managers in good barrels (high CEV/high CPI) have the lowest magnitude of dishonesty and corruption. Following theory of self-concept maintenance, most people want to maintain a positive and honest self-image (Mazar et al. 2008). The cost of dishonesty outweighs the benefit (Tepper et al. 2007). They curb dishonesty to avoid the loss of freedom, dignity, integrity, and reputation in their lives (Gomez-Mejia et al. 2005). Managers display "risk aversion for gains of high probability," one of the fourfold pattern of risk attitudes, supporting prospect theory.

On the other hand, managers in the low GDP group match fair closely to those in low CPI group. "Bad apples" in the low GDP Group not only Budget money poorly but also escalate feelings of Happiness. The combination of high Happiness and low ability or willingness to carefully Budget money suggests a happy-go-lucky mentality with low personal accountability for money. Since money is Power, it is extremely difficult for them to fight against the temptation (Baumeister 2002) of falling into a trap of self-centered personal and collective financial gain and opportunity to engage in dishonesty. Managers in bad barrels (low CEV/low CPI) have the highest magnitude but lowest



**Fig. 5** Parsimonious model of Monetary Intelligence, pay satisfaction, and life satisfaction: income as a control variable (The medium GDP group)

intensity of dishonesty (Tang et al. 2015). They are highly corrupt, but do not become corrupt for the love of money. Philip Zimbardo (2007) calls it the disturbing Lucifer effect (named after God’s favorite angle, Lucifer, who fell from grace and ultimately became Satan). Zimbardo attempts to explain the Stanford prison experiment and help us make sense of individual and corporate malfeasance.

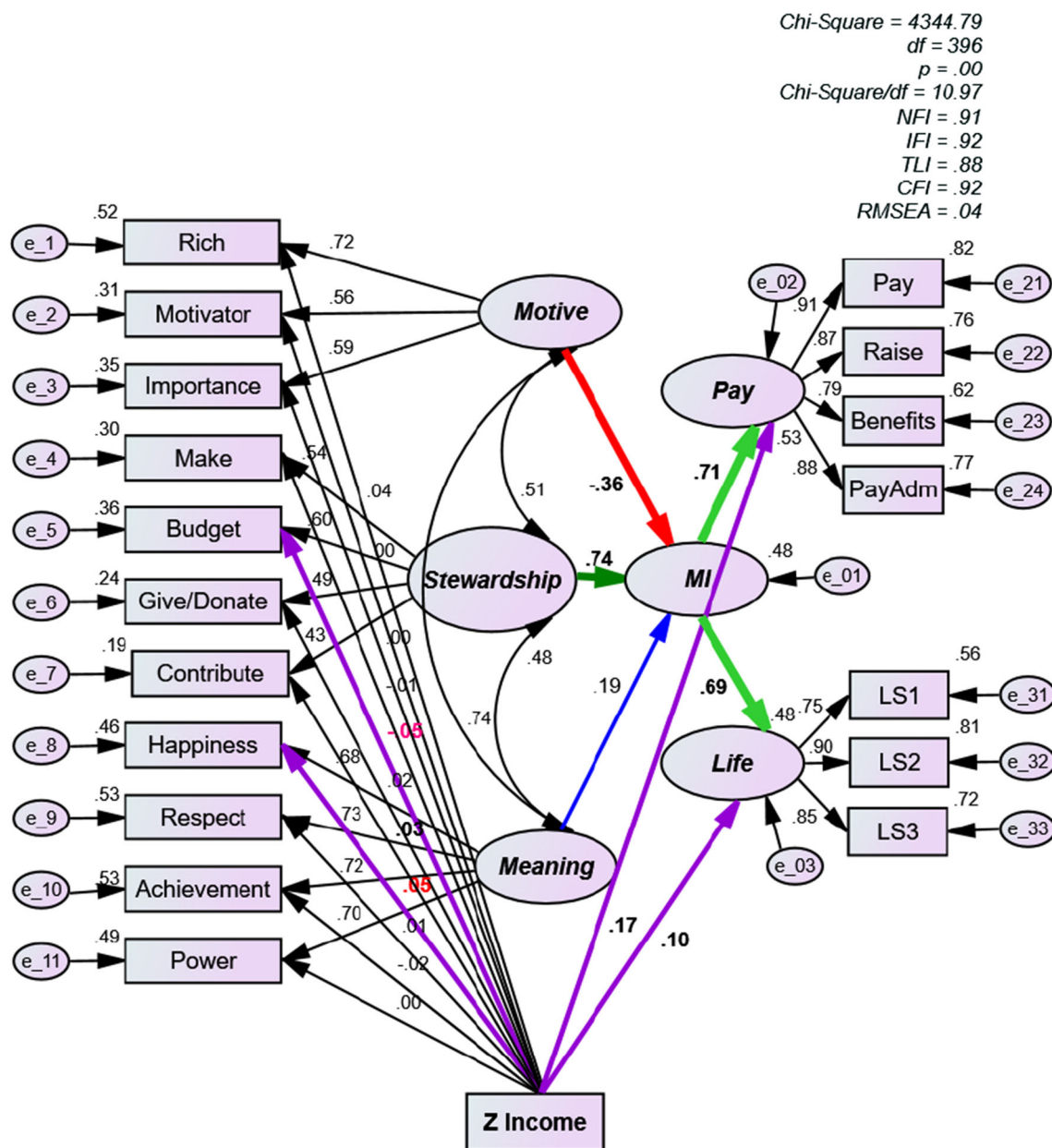
**Empirical Contributions**

We cannot provide counterintuitive, interesting, and novel discoveries (Bartunek et al. 2006) without a large sample at

the individual (6586 managers) and entity levels (32 entities). We demonstrate MI’s measurement properties: reliability (composite reliability and Cronbach’s  $\alpha$ ), validity, and rigorous measurement invariance results across cultures. Results enhance the generalizability of our findings and provide confidence to future researchers in conducting cross-cultural research in under-researched areas of the world.

**Practical Implications**

Money, as a topic of conversation, is a very personal, private, and value-laden taboo. We make Monetary Intelligence—a



**Fig. 6** Parsimonious model of Monetary Intelligence, pay satisfaction, and life satisfaction: income as a control variable (The low GDP group)

latent construct—clearly accessible and visible. We apply our carefully developed theory with solid psychometric properties to assess *intrapersonal*, *interpersonal*, and *cross-cultural* differences in people’s ability to process information and take action in pursuit of meaning, purpose, and happiness. It helps us understand possible reasons why some people are happier than others, and provide possible strategies to promote satisfaction and happiness in different cultures. Future researchers may develop training programs to help people assess and understand Monetary Intelligence, propose possible changes to improve actionable behaviors, and enhance satisfaction in different aspects of their lives.

Managers living in high/medium GDP countries have high income. Due to high levels of needs satisfaction, they have the luxury to down play the affective love of money motive and aspirations of money, whereas those in low GDP entities desperately want more, money/power, in particular. Executives cannot change managers’ Monetary Intelligence; yet they can properly *manage* it directly or indirectly through compensation systems and organizational cultures. People need money (a hygiene factor) *continuously* to maintain their lives. Feelings of “underpayment” may incite some to “love” their money more and have a higher motive to be rich than their fairly paid



counterparts (Cohen-Charash and Spector 2001; Tang et al. 2006a, b). They are likely to fall into temptations (Baumeister 2002; Tang and Sutarso 2013) and become dishonest in a corrupted environment (Greenberg 1993; Tang et al. 2015). Executives have strong control over their *malleable* compensation systems and can pay managers *fairly* and *well*. They must avoid the deeply rooted temptation (paying managers as little as possible, or *less* than they deserve) and manage all stakeholders well (stockholders, managers, employees, suppliers, and customers) to promote feelings of justice and satisfaction (Cohen-Charash and Spector 2001; Colquitt et al. 2001). Executives in multi-national corporations must not spurn the poor at the bottom of global economic pyramid because they may become new sources of growth in the earliest stage of rapid economic development and must manage human resources effectively across cultures.

### Limitations

Although we have random samples, we did *not* select 32 geopolitical cultures or most samples from the populations *randomly*. Our samples represented the populations well. Our cross-sectional data did not provide a cause-and-effect relationship. Money attitudes, pay satisfaction, and life satisfaction may be best addressed by mono-method self-reports. We purposely select only pay satisfaction and life satisfaction as outcome variables of Monetary Intelligence. Future researchers may want to include: additional money constructs with different meanings and in the conspicuous philanthropy category, in particular; work-related constructs; moderators, control variables (social approval motive); participants in different cultures and underdeveloped entities; laboratory experiments; and longitudinal data from multiple sources to enhance external validity. More research is needed in this direction.

### Conclusion

GDP per capita is related to life satisfaction, but not to pay satisfaction, and income is related to both life and pay satisfaction. Interestingly, neither GDP nor income is related to Happiness. There is consistency between affect and cognition, and both are different from behavior. Low love of money motive but high stewardship behavior and cognition contribute to Monetary Intelligence which leads to higher pay satisfaction than quality of life.

Our theoretical model across three GDP groups demonstrates additional insights: In rich cultures, high income not only reduces aspirations but promotes stewardship behavior and a sense of Achievement. With low love of money motive but high stewardship behavior, good

apples enjoy good quality of life in good barrels. In poor cultures, high income is related to poor Budgeting skills and escalated feelings of Happiness. Managers experience equal satisfaction with pay and life. Those who Budget money poorly have higher dishonesty in corrupt cultures. Managers in medium GDP entities fall in between and have higher life satisfaction than pay. Our present findings offer new insights regarding the lowest and highest magnitude of dishonesty in good and bad barrels (Tang et al. 2015) that reflect risk aversion for gains of high probability and risk seeking for gains of low probability, respectively, supporting prospect theory.

We empirically demonstrate the bright side of Monetary Intelligence: Your ability to reduce love of money motive, enhance stewardship behavior, and enjoy a sense of Achievement sets the tone to your happiness. You can enjoy high quality of life if you “let your life be free from love of money but be content with what you have”<sup>9</sup> and become a good steward. We add a new vocabulary to the conversation of monetary intelligence, income, GDP, happiness, subjective well-being, and good and bad apples and barrels, and to the field of behavioral economics and behavioral ethics.

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<sup>9</sup> Hebrew 12: 5.



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