Changing detriment into benefit; emerging market risk as competitive advantage

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Abstract

This paper argues that greater levels of risk, generally thought to be detrimental to business performance in emerging markets, are actually a benefit and an important source of competitive advantage for emerging multinational enterprises (EMNEs) competing in the global arena. EMNEs that have survived despite these challenging business environments are more comfortable with and skilled at managing risk than their developed market peers as evidenced in two ways. First, EMNEs are able to stabilise their business performance to statistically match the risk spread of those in developed markets despite their more volatile environments, and second, EMNEs perform progressively better than developed market firms at increased levels of risk.

Interestingly, EMNEs react identically to risk drivers that developed market firms responded to twenty years ago, but developed market firms no longer respond the same way. Today, these risk drivers vary significantly between EMNEs and multinational enterprises (MNEs). For example, in every EMNE-MNE comparison, expectation, firm age, firm independence and available slack had contrasting influences. These differences may be attributed to the earlier stage of development for EMNEs rather than an emerging market influence.

Most firms, regardless of origin, strive for low risk levels while the best returns are to be made at medium risk levels. This evidence both supports and contradicts Bowman's Paradox of a negative risk-performance relationship. The strongest risk drivers are internationalisation, recoverable slack and past performance.

Keywords

Emerging market, risk, performance, competitive advantage.

Declaration

I declare that this research project is my own work. It is submitted in partial fullfilment of the requirement for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out my research.

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1.1. Research title

Changing detriment into benefit; emerging market risk as competitive advantage

1.2. Introduction

Emerging multinational enterprises (EMNEs), long thought of as less competitive businesses, have taken the world by storm by introducing new ways of designing products, managing companies, and organising processes that have seriously challenged the competitive positions of multinationals from developed countries. There are now more than 21 500 EMNEs competing globally (UNCTAD, 2009), with the number of EMNEs among the coveted Global Fortune 500 list reaching 85 in 2010 (CNN Money, 2010) up from just 24 in 2002 (Economy Watch, 2010). In fact, emerging market companies are now global leaders in 25 industries (Aguiar *et al*, 2009). Emerging markets also contribute 45% to global GDP (at purchasing power parity) up from 36% in 1980, and are projected to reach 51% by 2014 (The Economist, 2010a). According to Goldman Sachs (2010), BRIC stock market performance has been spectacular, with Brazilian shares up 345%, Indian shares up 390% and Russian shares up 639% since November 2001. China only saw a 26% increase but Hong Kong realised 500% gains (The Economist, 2008). Furthermore, in 2009, while most of the world's GDP contracted due to the financial crisis, emerging market economies like India and China continued to

grow by 5% or more (IMF, 2010). The global economic landscape is changing and EMNEs are a major force of this change.

What makes EMNEs different? Firms from both developed and emerging economies employ similar, traditional strategies of low cost leadership, diversification and owning the value chain, so these strategies alone do not explain their apparent success. To understand how EMNEs are catching up and in many cases overtaking developed market firms, one must dig deeper to appreciate who the business managers are behind the strategies, how they perceive the world and what level of risk they accept when making decisions.

Take Cosira, a multinational steel and construction company based in South Africa. Less than ten years ago it was a 2nd tier supplier to the construction industry employing a dozen people. When the opportunity presented itself, Cosira took an enormous risk by bidding on a project for a major mining house that was larger than itself. At the time it did not have the technical skill set, the infrastructure nor the capacity necessary to fulfil the order, however the team was prepared to make it work at all costs and quickly built or outsourced the resources, talent and capacity they needed to fulfil the contract (J. Da Silva, personal communication, March 30, 2010). The mining house was so impressed that they awarded two additional contracts, each one 50% larger than the previous. The business was now set on an exponential growth trajectory and competing directly with the construction companies it had supplied in the past to become a multinational player today.

Another example is Innscor, a company from Zimbabwe focused on fast food franchises and convenience stores. When Zimbabwe faced increasing economic uncertainty, Innscor needed foreign currency and rather than wait for the banks, they leapt past their fast food franchise business model to establish themselves in the tourism industry. However, the economic crisis grew worse in Zimbabwe adversely affecting the tourism sector, so they again quickly shifted focus and started exporting crocodile meat and skins. This enabled them to finally secure much needed foreign exchange. Today Innscor is one of the largest crocodile meat and skin exporters in the world, as well as a substantial fast food supplier across Africa (Mahajan, 2008).

Both companies saw opportunity (or risk) in their environment, recognised potential beyond their current capabilities and took decisive actions that would terrify more risk averse firms. Their decisions forced them to accelerate the building of core capabilities, opening a door to a new playing field for their businesses. Such risk-taking coupled with capacity building has ensured Cosira and Innscor's double digit growth for more than ten years (Mahajan, 2008). There is no doubt that these two stories illustrate the extraordinary efforts firms can go to to respond to both crises and opportunities in their environment. However, are these isolated cases brought about by exceptional firms, or are these cases indicative of a mindset that generally distinguishes successful emerging market companies from from their peers in developed markets? This paper explores whether the greater levels of risk, generally thought to be detrimental to business performance in emerging markets, is actually a benefit and an important source of competitive advantage for EMNEs.

The Economist (2010b, para. 8) described EMNEs as “islands of success... surrounded by a sea of problems”. While emerging markets are vastly different from one another and therefore difficult to generalise, one element they all share is a challenging home environment. This can manifest itself in any combination of inadequate infrastructure, skills shortages, crime and/or corruption, insufficient legal protection, challenging distribution systems, poverty, etc., (Khanna & Palepu, 2006). There is little debate that these institutional voids are detrimental to business growth. However those firms that manage to survive learn innovative ways of dealing with the inherent challenges in their risky home environments (Khanna & Palepu, 2006). This skillset may in fact be an important competitive advantage when competing globally, especially in their early stages of internationalisation (Ramamurti, 2009). Such firms become experts at responding quickly to both challenges and opportunities in their environments, despite any associated risks.

The global arena is becoming increasingly more competitive and forces such as strong American/European consumer demand and inexpensive oil that fuelled the booming economies of the past no longer exist (The Economist, 2008). To stay relevant, developed market firms must devise effective strategies to compete with this new breed of competitor. This study helps to explain one key element of the emerging market firm’s toolkit; their penchant for risk-taking as part of strategic choice.

1.3. Research aim and purpose

The aim of this research is to evaluate whether emerging market risk is a source of competitive advantage for emerging market multinational enterprises (EMNEs) rather than a detriment. To do so, the study will look at whether the factors that lead to risk-taking vary in direction and intensity between firms from emerging and developed markets. It is likely that emerging market firms respond in unique ways to risk-taking drivers common in organisational risk studies due to their different environmental contexts. There may even be alternative drivers that are more significant to these firms outside prevailing developed market based literature. This study hopes to fill this important gap in the research.

The study will then examine the impact that risk-taking has on firm performance and determine if there are statistically significant differences between emerging and developed market firm performances at various levels of risk. The generally accepted concept of 'risk-reward' states that firms taking on higher levels of risk, on average, should have higher levels of performance than those who take on lower levels of risk, as most firms are risk averse (Rodrigues, 2002).

The challenges inherent in volatile emerging market environments increase the level of risk for firms operating in these environments and investors wishing to capitalise on the higher growth rates of such businesses. As a result, it is hypothesised that the firms that thrive within these constraints have likely

become comfortable with and skilled at managing the inherently higher levels of risk in their environments, and can do so better than firms from developed markets, especially in the earlier stages of their internationalisation (Ramamurti, 2009). This ability to manage risk, especially when such risk-taking accelerates the development of core capabilities, may be an important competitive advantage for emerging market firms and one that cannot easily be imitated by their developed market peers. Such risk may also be a significant contributing factor to their performance, contrary to Bowman's Paradox which argues for a negative risk-return relationship as a result of higher levels of organisational risk-taking (Bowman, 1980; Bromiley, 1991; Nickel & Rodriguez, 2002). If this is correct and EMNEs are indeed more comfortable with managing higher levels of risk, they should have higher levels of performance than developed market firms at equal levels of risk.

Figure 1.3.1 Study progression diagram

1.4. Justification for research

Fast growing EMNEs show different but dynamic capabilities outside of the conventional firm specific advantages (FSAs) of developed market firms (Lee & Slater, 2007), yet our understanding of these unique characteristics is limited (Aybar & Thirunavukkarasu, 2005). Researchers hope to discover where these

capabilities originate, and how they can be further harnessed to improve competitive advantage (Klein & Wöcke, 2007). There is also a strong need to understand how environment and culture impact both resource creation and strategic decision making within an emerging market context (Kang, Place & Syler, 2009; Barney, 2001). Until recently, EMNEs have been dismissed as lacking the resources and sophistication to compete meaningfully against firms from developed markets. Yet, the emerging market giants have been outperforming their big brothers on many commonly used performance benchmarks (Aybar & Thirunavukkarasu, 2005). The findings from this research may also broaden the literature around factors leading to the unique internationalisation approach of EMNEs, for which existing theory is weak (Ramamurti, 2009), especially in the early stages.

What research has been done with the risk performance connection in an emerging market context has generally come from the financial stream rather than from a strategic management focus (Nickel & Rodriguez, 2002; Aybar & Thirunavukkarasu, 2005; Cavalloa & Valenzuela, 2010; Estrada & Serra, 2005). Those that have looked specifically at risk-taking within organisations, rather than risk from an investment perspective, generally use firms from the developed markets as their base. While there is little question that firms from emerging markets are exposed to more risk than their developed market peers (Khanna, Palepu & Sinha, 2008; Aybar & Thirunavukkarasu, 2005), their comfort with risk and their ability to handle different types of risk have not been examined closely in the literature. What has been examined on the risk-return relationship from a strategic context has generally been done using a limited

firm and industry qualitative approach. This research uses quantitative analysis comparing six countries and three industries for over 500 companies across various risk dimensions.

There is also a need to understand how different macro-environmental country contexts shape risk seeking behaviour (Lee & Slater, 2007). This research will evaluate whether dominant risk theory developed within a developed market context holds true for emerging markets (Hoskisson, Eden, Ming Lau & Wright, 2000), especially in Africa which has little representation in the literature (Wright, Filatotchev, Hoskisson, & Peng, 2005). Most of the research to date has centred on the risk-taking of mature American and European multinational firms, but the majority of EMNEs are in the infancy of their internationalisation development, come from entirely different national contexts (Ramamurti, 2009) and will likely have different reactions to risk. Therefore, a new framework to support emerging market risk drivers may need to be developed.

Risky decisions are the most important decisions that senior managers make. By their very nature they can lead to enormous gains or devastating losses. How EMNE managers handle uncertainty in their environment and their risk propensity to accelerate their growth can have an enormous impact on their companies' global competitiveness. By leveraging their familiarity with risk and their ability to manage risk effectively as core competencies, EMNEs have an important competitive advantage. This research aims to help EMNE managers understand how to use risk to create sustained competitive advantage, evaluate responses to risk from environmental uncertainty as well as opportunities for

growth, and exploit those responses which are likely to generate the strongest results. It also aims to give greater insight to investors interested in understanding the risk-return relationship of strategic decisions in common industries in both developed and emerging markets.

2. Theory and literature review

2.1. Defining risk

Risk is defined as a condition of uncertainty in which there may be a negative outcome (Hubbard, 2007). By contrast, uncertainty is defined as a condition in which a number of possibilities could result from a decision made (Hubbard, 2007). Many strategic business decisions are risky. For example, a green field investment, a joint venture or an acquisition are all potential paths to enter into new markets, but each carries different trade-offs resulting in higher or lower levels of risk. Business managers are continually balancing the opportunity inherent in a decision with the accompanying risk.

Income stream uncertainty is the traditional measurement used in research studies to approximate risk-taking by firms (Bromiley, 1991; Nickel & Rodriguez, 2002). Theoretically, firms that take few risks should have more stable, predictable income streams than those that take many.

2.2. The risk-return relationship

A fundamental assumption in financial theory is the positive risk-return relationship of investments. The theory postulates that because investors are rational decision makers, they will only take on additional risk if there is a greater probability of higher returns than alternative less risky investments. The positive risk-return relationship has been widely tested using stock market

returns with beta as a measure of risk within the capital asset pricing model (CAPM) (Nickel & Rodriguez, 2002). However, Fama and French (1992), in their landmark paper, "*The cross-section of expected stock returns*" challenged conventional financial thinking by finding a negative relationship between risk and return that drove a new stream of research nicknamed "the death of beta". Yet twelve years earlier Bowman (1982) had discovered a similar negative trend when analysing organisational risk-taking, which has become known as 'Bowman's paradox'.

Many researchers have attempted to justify Bowman's finding by either pointing out mistakes in his study methodology or by accepting his findings as truth and attempting to create a theory that justifies why this would be so (Nickel & Rodriguez, 2002). Theoretical justifications are generally explained through prospect theory which focuses on managerial decision making and risk-taking propensity, or behavioural theory which centres on the strategic reference point of the firm (Nickel & Rodriguez, 2002). An additional theory, and one which Bowman (1980), Shapiro (1995) and Andersen, Denrell and Bettis (2007) support, is that good managers should be able to achieve a higher return at a lower level of risk than less competent managers. "High performance with low variability can be achieved through superior strategic conduct, and low performance with high variability can result from inferior strategic conduct" (Andersen, Denrell & Bettis, 2007, p. 409). These theories have been studied using firms from developed nations as their sample. This research however attempts to discover whether emerging market firms follow the same risk-performance path as their developed market peers.

2.3. The risk-taking behaviour of business managers and their teams

Strategic business decisions are made by individual business managers and their teams, therefore it is important to understand risk-taking characteristics on both an individual and firm level. People and firms are generally characterised as risk averse, risk seeking or risk neutral, although risk preference can easily change based on the context of decisions (Nickel & Rodriguez, 2002).

- *Risk averse* – given the same expected earning level, lower risk investments are preferred (Positive risk-return relationship)
- *Risk seeking* – given the same expected earning level, higher risk investments are preferred as they have the potential to lead to extraordinary returns (Negative risk return relationship)
- *Risk neutral* – higher earning investments will be preferred regardless of their associated risk levels (Inconsistent risk-return relationship)

Kahneman and Lovallo (1993) found that business managers demonstrate disjointed risk-taking tendencies. On the one hand they are overly confident about their own abilities and chances for success, leading them to make risk seeking decisions and underestimating the risk involved in their choices. On the other hand, business managers tend to be risk averse regardless of the size of the stakes involved. They believe the reason for these contradictory tendencies of unwarranted optimism and unreasonable risk aversion is that people tend to narrowly frame each decision as unique, as if there was no

learning from similar decisions in the past, nor future ramifications attached to their current decision making.

Risk-taking also depends on whether the outcome of the decision is favourable or discouraging. When outcomes are favourable, people tend to be risk averse, preferring the option of a sure thing to a gamble. However when faced with losses they tend to be risk seeking. For example, when given the choice of a guaranteed $240 or a 25% chance of winning $1 000 and 75% chance of winning nothing, 84% of people choose the sure bet. But when the opposite choice is given of a sure loss of $750 or a 25% chance of not paying a cent and a 75% chance of losing $1 000, 87% of people choose to take the gamble (Tversky & Kahneman, 1986). The above tendencies result in decision makers paying a premium both when they avoid risk and when they embrace risk (Kahneman & Lovallo, 1993). However, people weight the possibility of a loss 2-2.5 times more than the potential of a gain and therefore put a higher premium on avoiding loss at all costs (Tversky & Kahneman, 1986).

From an organisational context, the acute tendency to avoid loss often leads to inertia as managers are even more sensitive to the disadvantages that may occur from taking a personal risk outside of company norms. Risk sensitive managers know their decisions will be scrutinised by others (Tetlock & Boettger, 1992) and depending on the circumstances can feel it is easier to do nothing than to risk embarrassment or jeopardise personal advancement.

Risk averse tendencies do not stop at the individual level. Jackson and Dutton (1987) found that firms confronting similar risks in their environments could categorise these events in entirely different ways. While some firms saw risk as an opportunity which would likely lead to gains in income, others saw risk as a threat. The firms that saw risk as a threat tended to respond by centralising decision making, restricting the flow of information, and strictly keeping to tried and true business practices (Lima, Basso & Kimura, 2009). Panzano and Billings (1994) also found that the more a firm perceived a change in their environment as a threat, the less risk they were willing to take. In effect they were bracing for survival mode. In contrast, those that saw change as opportunity welcomed new information, experimented and decentralised decision making in response.

When decisions to take a risk fall under group responsibility, prudent risk aversion often prevails, as any argument for embracing opportunity rests on unverifiable assumptions easily subject to doubt. Projects only have a chance of survival when they are framed optimistically and there are strong incentives in place to motivate key decision makers to act. In this case, Kahneman and Lovallo (1993) found that groups can become overly optimistic and therefore tend to underestimate the risk involved and likely misjudge their own abilities. Managers in particular generally overestimate the extent of their own power to control events, believing that risk is something that can be overcome through sheer managerial skill, persistence and hard work (Kahneman & Lovallo, 1993). Ultimately while many researchers stress the importance of firm management decisions on performance, many risks are outside of management's control and

are hard to predict, much less quantify (Andersen, 2009; Kahneman & Lovallo, 1993). Despite this, managers are optimistic in their abilities. Optimism generally appears in three forms; idealistic self assessments, idealistic optimism about future events and a false belief in what is under one's control. If the assumption that EMNE business managers are more comfortable with and ultimately better skilled at managing risk due to their volatile home environments is true, it is then likely that they suffer from these forms of business risk optimism.

Still, Bowman (1980) believed that good managers have the skill to simultaneously reduce risk while increasing returns by interpreting their environmental context accurately and taking proactive and strategic steps to respond appropriately to opportunity (Andersen, Denrell & Bettis, 2007). Andersen (2009) found that good managers can manage risk effectively by maintaining low financial leverage while also proactively investing in innovative efforts that build the firm's core capabilities. Shapira (1995) supported Bowman's (1980) and Andersen's (2009) findings by arguing that, while a good managers takes high risks, they must reduce the level of this risk over time.

Emerging market firms, in contrast to developed market firms for which most of the prevailing risk literature is based on, often do not have the luxury of remaining idle. They must adjust regularly in response to the volatile pressures in their environment. The question becomes not should they act, but rather how should they act. Still, many developed market firms are saddled with a legacy of cultural values not conducive to fast adaptability and growth.

2.4. Volatile emerging market environments

Emerging markets are incredibly varied and complex, but what they do share are significant differences in their institutional environments which result in higher levels of risk than developed market economies. Developed markets generally have well-functioning, market supporting, formal institutions such as intellectual property protection, and effective judiciary systems (Khanna & Palepu, 2006). Emerging markets in contrast often have unskilled intermediaries, difficulty with countrywide logistical distribution, limited market research bodies and an inability to ascertain the creditworthiness of individuals or other firms (Khanna & Palepu, 2006). Without the protection of contracts or intellectual property, firms operating in emerging markets experience substantial risk in determining who to trust and how to protect their firm specific sources of competitive advantage (FSAs). In addition, emerging markets are often plagued by higher interest rates and inflation, exchange rate instability and political insecurity. These institutional voids or challenges lead to higher transactional costs and undermine market effectiveness (Aybar & Thirunavukkarasu, 2005).

Given the notorious volatility and multiple institutional voids that make conducting business more challenging in emerging markets, it is hypothesised that this environmental instability would lead firms from emerging markets into operating at greater risk levels than their developed market counterparts.

Hypothesis 1: *The challenging business environment in emerging markets leads to greater average risk-taking by EMNEs than MNEs from developed markets.*

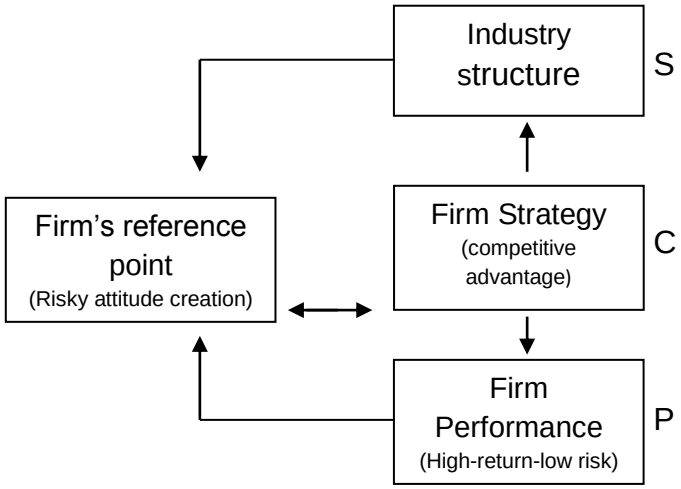
2.5. Structure-Conduct-Performance (SCP) theory

The Structure-Conduct-Performance (SCP) paradigm (Scherer, 1980; Porter, 1980) links firm environment, competitive advantage, risk and firm performance. The SCP model connects the decisions that firms make (conduct) in response to their environmental context (structure) with their ultimate risk and return (performance). To maximise performance, a firm's management must select the best strategy in conjunction with the country structure it operates within. They argue that these three interlinking forces also have an effect on risk attitude. A firm only has control over the development of its core capabilities and its risk seeking attitude within the four intersecting pieces of the SCP model. The environment is the catalyst for firm opportunities and performance is the result of the firm's strategy (Fiegenbaum & Thomas, 2004). Firms do not act homogenously to the same set of environmental factors and therefore have different performance levels.

Fiegenbaum and Thomas' (2004) contribution to the SCP model, the strategic reference point, is a conceptual point where a firm falls in relation to other competitors within their industry in terms of capabilities and performance. If a firm perceives themselves to be below their competitors, they are more willing to engage in riskier strategies to improve their competitive position. On the

opposite extreme, firms enjoying a high reference point with superior financial performance to their competitors are more risk averse in order to protect their current position (Fiegenbaum & Thomas, 2004). The reference point is a helpful tool in understanding firms' attitudes toward risk as a consequence of how they perceive their relative positioning in the market (Shoham & Fiegenbaum, 2002; Nickel & Rodriguez, 2002). However, reference points are firm specific so the industry average generally used as the target reference level may not be an appropriate measure (Lee, 1997).

Figure 2.5.1 Integrating perspective of SCP Model (Fiegenbaum & Thomas, 2004)



The theory underlying reference points also links risk seeking attitudes with firm performance, making the unlikely assumptions that all of a firm's risk can be explained by the firm's risk seeking attitude and that a firm's managers are able to predict future performance (Lee, 1997). Despite these challenges, strategic reference points reliably enable researchers to divide companies based on high, low or survival expectations in order to model their likely risk seeking propensity.

While similar to the SCP model, another useful paradigm to determine risk seeking attitude was developed by Baird and Thomas (1985) using three interrelated levels. The first level examined the risk-taking propensity of the people who managed the firm. The second level interlinked past decisions with current strategic choices, and finally level three bound the firm's environment and industry structures into their level of risk-taking.

2.5.1. Firm's reference point and resulting risk seeking behaviour

The way in which firms engage with risk is dependent on how they frame their performance based on their reference point. For example Bromiley's (1991) popular risk-performance model determines a firm's propensity to take risks to be a function of five reference point factors; the firm's past performance, the industry's performance, the expectations and aspirations of a firm and the firm's level of slack (Bromiley, 1991; Fiegenbaum & Thomas, 2004). Each of these reference point factors either has a positive or negative influence on a firm's level of risk-taking and ultimately resulting performance as illustrated in table 2.5.1. While all of these have proven to be important, researchers still know little about how individual firms choose their reference points (Lehner, 2000).

Table 2.5.1: Effect of reference point factors on risk-taking

Determinants of risk-taking	Determinants of risk-taking	Source
High past performance	-	Shoham & Fiegenbaum, 2002; Fiegenbaum & Thomas, 2002;

		Bromiley, 1991; Nickel & Rodriguez, 2002
Low past performance	+	Bromiley, 1991; Shoham & Fiegenbaum, 2002; Fiegenbaum & Thomas, 1988; Bowman, 1984 Nickel & Rodriguez, 2002; Lehner, 2000
Very low past performance	-	Nickel & Rodriguez, 2002; Lehner, 2000
Average industry performance	-	Bromiley, 1991
High expectations of the firm	+	Bromiley, 1991; Shoham & Fiegenbaum, 2002
High aspirations of the firm	+	Bromiley, 1991; Shoham & Fiegenbaum, 2002; Lehner 2000
Available slack	-	Bromiley, 1991; Singh, 1986
Recoverable slack	-	Bromiley, 1991
Potential slack	-	Bromiley, 1991; Singh, 1986

Next, the five reference point factors that influence firm risk-taking identified by Bromiley (1991) will be explored in more detail.

Past performance

Firms with good past performances are likely to want to protect their market positioning and therefore respond to change in a risk averse way, discouraging innovation or a challenge to the status quo. However as competition intensifies on the global stage, resting on past success may no longer be a viable option in most industries. Shareholders will also continue to set their expectations for future performance as high as possible using the firm's current high performance as the minimum benchmark (Lehner, 2000). But firms with low past performance are likely to engage in risky opportunities in order to "catch up" to their industry peers (Bromiley, 1991; Shoham & Fiegenbaum, 2002; & Fiegenbaum & Thomas, 2004). Their shareholders will hold firm management

accountable for at least reaching industry average performance (Lehner, 2000), which might mean that drastic organisational change is needed (Greve, 1998). The only time this appears untrue is under conditions of very poor performance where any risk taken may lead to extinction of the firm. In this scenario, survival takes precedence over any gains that may occur from risk-taking (Lehner, 2000).

Aspirations and expectations

If a firm's current performance is below an aspirational level, business managers will likely be incentivised to grow the business to reach a new higher target performance, which would naturally entail taking on additional risk in the process (Bromiley, 1991; Shoham & Fiegenbaum, 2002). Therefore a firm's aspirational reference point should have a positive influence on risk-taking. If however, managers expect their firm's performance to improve organically, they would have less of an incentive to take on any additional risk. In this case a firm's expectation reference point would likely have a negative influence on risk-taking. Bromiley (1991) believed that risk was a function of aspiration less expectation.

Industry performance

Similar to the concept of poor firm performance propelling companies to take risks in order to 'catch up' to their industry peers, poor performing industries force companies to continually innovate in order to stay competitive (Bromiley, 1991). Firms in high performing industries by contrast do not need to take the

same risks in order to enjoy higher margins. Therefore industry performance has a negative influence on risk-taking.

Slack

A firm's slack can either have a positive or negative effect on a firm's level of risk-taking, depending on its type and desired quantity (Bromiley, 1991; Singh 1986). Organisational slack is defined as an excess of company funds on reserve that are greater than what is required for normal operating needs. Organisational slack can be a strategic advantage giving firms the flexibility to adapt quickly to changes in their environment, especially when these reserves are higher than their competitors have access to (Lima, Basso & Kimura, 2009). Slack can be divided into three types: available, recoverable and potential. Available slack is a company's excess liquidity that can be recovered immediately for opportunistic investment. Recoverable slack is money that management believe they could save if they made the company more efficient, i.e. it is slack that is absorbed within inefficient operations. Potential slack is a company's capacity to raise excess capital from debt or equity financing (Lima, Basso & Kimura, 2009).

Firms tend to take risks as a result of their level of slack on two occasions. If a firm's level of slack is substantially below what it desires, it is likely to take risks to build up its reserves. Likewise, if it has excess slack considerably above its target level the firm will look for opportunities to invest. Andersen, Denrell and Bettis (2007) warn that when these slack levels are too high, managers may engage in self interested, dubious and/or suboptimal investments. Yet, when an

organisation's slack is close to its target level, company management will be satisfied that they are operating satisfactorily and will not seek out opportunities for change (Bromiley, 1991; Greve, 1998; Lima, Basso & Kimura, 2009).

Research using the previous five reference factors by Bromiley (1991), Shoham and Fiegenbaum (2002) and Singh (1986) was conducted by studing risk's influence on American firms. While these findings ensure that these reference factors are significant, it is likely that there may be additional factors that are more important to determining the extent of risk seeking behaviour for emerging market firms. To this end, three additional variables were selected for testing based on literature findings (Henderson & Benner, 2000; Aybar & Thirunavukkarasu, 2005; Aguiar *et al,* 2009).

Firm age

Henderson and Benner (2000) found that an organisation's age impacts the level of risk it takes on. Younger organisations are more agile but are unable to carry the risky consequences of expensive losses and therefore tend to be risk averse, while older, more established firms which are performing below average have financial slack and tend to have a higher propensity to take greater risks.

Internationalisation

EMNEs demonstrate a unique internationalisation path. When EMNEs enter peer countries or countries less developed than their own, they leverage their current capabilities to exploit opportunities, but when entering more developed countries they acquire strategic assets boosting their competitiveness (Aybar &

Thirunavukkarasu, 2005). Generally these firms cannot rest merely on the capabilities used to succeed in their home markets but must build new firm specific advantages (FSAs) to compete successfully in other markets (Klein & Wöcke, 2007). However while building strategic assets increases competitive advantage, Aybar and Thirunavukkarasu (2005) found that performance decreases (as measured by ROA) with the presence of EMNEs in developed countries. They justified this given the higher expense in integrating businesses into developed markets as opposed to emerging markets. Entering new countries should theoretically have a positive risk relationship although this may be somewhat weakened by the diversification benefits it offers to income stability.

Independence

Aguiar *et al* (2009) argued that tighter firm control results in greater risk-taking. This is especially apparent in the case of unlisted companies as well as family run businesses that are without the scrutiny of outside investors expecting short term results.

While spanning two decades, the current research on firm reference points in determining risk seeking behaviour has focused on firms from developed markets. However there may be striking differences between the extent and even direction of these factors on the propensity to take risks for firms from emerging markets, given their riskier home environments and cultural differences. These reflections suggest the following hypothesis:

***Hypothesis 2**: The factors that have the greatest influence on the level of risk-taking are different for emerging market firms than for firms from developed markets.*

2.5.2. S of SCP: Industry and environmental structure

The home country environment a firm operates in greatly influences the development of its capabilities over time (Ingram and Baum, 1997). Internalisation theory argues that while a firm's core capabilities or FSAs determine its level of success, the environment plays an important role and can have either a limiting or assisting influence on this success. Both opportunities and risks are born directly from a firm's environment (Morris, 1998), so a firm must adapt and change in response to environmental pressures if it is to maintain or grow its current profitability (Porter, 1980). When the environment is a constraint as in emerging economies, a firm's ability to learn quickly and change course if needed becomes paramount to its success (Verbeke & Brugman, 2007; Andersen, Denrell & Bettis, 2007). This ability to adapt to the business environment can be a powerful competitive advantage beyond normal product/service competencies and difficult to imitate.

Emerging markets are well known for their challenging and volatile business environments due to institutional voids such as inadequate infrastructure, skills shortages, crime and/or corruption, insufficient legal protection, challenging distribution systems, poverty, etc. (Khanna & Palepu, 2006). Although there is little question that these institutional voids are a disadvantage to firms coming

from emerging markets, Yui *et al* (2007) and Dawar and Frost (1997) found that firms develop certain core capabilities by getting around the institutional challenges within their home environment that may "travel well" to other tough emerging market environments. Khanna and Palepu (2006) support this view by arguing that MNEs which have encountered and learned effective ways of working around "institutional voids" in their home markets, are more likely to be adaptable and creative when finding solutions to institutional constraints in other emerging market economies, giving them a distinct competitive advantage over MNEs from developed economies. For example, Cuervo-Cazurra and Genc (2007) found that by learning to adapt, EMNEs can use these lessons to enter other emerging markets that developed market firms might consider too risky to do business with (Aybar & Thirunavukkarasu, 2005).

Maranto-Vargas and Rangel (2007) and Andersen, Denrell and Bettis (2007) also found firms that are able to shift their business models in response to changing environments were most able to match their global competitors. Andersen (2009) argues that the most important determinant of firm performance is management's ability to align their strategy and firm operations to the prevailing environmental conditions. They contend that firms must have the capability to assess changes in their environment, develop an appropriate response to these environmental changes and then mobilise their internal resources to respond appropriately.

Emerging market firms in particular become used to a high level of uncertainty and as a result develop flexible responses to environmental challenges (Cuervo

Cazurra & Genc, 2007). Therefore an emerging market MNE develops firm specific advantages to deal with their home environment outside of the more conventional capabilities necessary in developed economies, which can be an important source of competitive advantage. However Klein and Wöcke (2007) disagree, finding that strong visionary leadership and home country dominance are more important, contrary to the view that EMNEs would react similarly faced with identical environmental conditions.

2.5.3. C of SCP: Core capabilities and competitive advantage

Lee (1997) proposed that countries have cultural traits that either hinder or encourage the entrepreneurship and global competitiveness of its firms. Yiu *et al* (2007) argued that for EMNEs to successfully compete globally, beside core capabilities they need to perfect corporate entrepreneurship activities which include innovation, venturing and strategic renewal (Zahra, 1996). Innovation is the capability to invent new products, processes or systems while venturing refers to the skill of bringing in new business. Strategic renewal is the competency of the firm to reinvent itself when the environment changes, and to add new capabilities to old. Lee and Slater (2007) contend that entrepreneurial risk-taking is essential for the success of emerging market multinationals, and in fact is the key component underpinning seemingly high risk investments in core capability acquisition and/or development. Andersen (2009) supports this view and believes that slack resources should be invested in innovative efforts to ensure firms have strategic options as the environment warrants.

The most successful emerging market firms have not stuck to the traditional path that developed market firms historically followed, nor the path that would be expected given the development stage of their home country. These global leaders often set ambitious goals that their current capabilities could not achieve (Hamel & Prahalad, 1989), similar to the Cosira case in the introduction, and then built the capabilities required to reach their goals. By acquiring core capabilities, often at high risk, they were able to leap-frog into international dynamic competitiveness (Lee & Slater, 2007). However, there was no guarantee that investment in their development would one day turn into viable business propositions and sources of core competencies (Andersen, 2009). Investment in innovation is risky. Firms must incur costs today for uncertain future outcomes as there is never a guarantee that new ideas will succeed.

Hamel and Prahalad (1994) propose that a firm's core capabilities lead to a firm's competitive advantage, but only when these capabilities cannot be imitated easily. The resource based view of a firm (Barney, 2001a) describes the core capabilities that lead to sustainable competitive advantage as those which are not easy to copy, are rare and are intangible, but stresses that the intrinsic value of particular competencies or resources is subject to the specific market context firms operates in. Specifically those firms "that build their strategies on path dependent, causally ambiguous, socially complex, and intangible assets outperform firms that build their strategies only on tangible assets" (Barney, 2001b, p. 648). As the global market becomes more competitive, tangible assets are increasingly imitated, but intangible processes

that are developed over a long period of time such as global learning are harder to imitate (Peng, 2001).

To make up for the 'liability of foreignness', multinational firms need strong FSAs that carry well into new environments. However, Ramamurti (2009) found that the strengths EMNEs launch into international markets with vary dramatically from the typical FSAs of innovative technology, strong brands and marketing dexterity generally characteristic of developed market multinationals. While EMNEs often do not possess these traditional FSAs, they do possess the ability to operate in challenging environments, the ability to develop frugal solutions for product and service markets, and the ability to learn quickly from other companies and their environment in order to adapt appropriately (Ramamurti, 2009). Another competitive advantage they have is the ability to manage risk well, especially within other developing countries (Goldstein & Prichard, 2008).

In addition, Sieler (2008) found that one of the most influential determinants of EMNE international performance was the development of value chain core capabilities. By controlling and perfecting the value chain, MNEs can take advantage of both economies of scale and enhanced flexibility to respond to arbitrage opportunities across capital, product or factor markets. Maranto-Vargus and Rangel (2007) argued that these internal core capabilities give a far greater competitive advantage than financial resource access, especially when trying to compete with larger, multinational competitors.

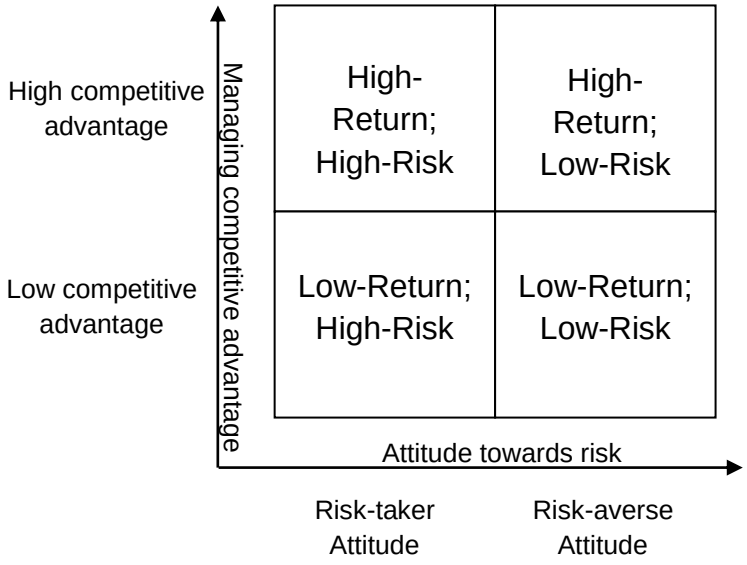
2.5.4. P of SCP: Firm Performance

The prominent risk-performance study by Bowman (1980) found that there was an inverse relationship between the level of risk a firm engaged in and its overall performance, contrary to popular economic theory of the risk-return relationship. He argued that firms are not always risk averse and in certain contexts, they are risk seeking. Bowman's study (1980) was done in the late 1970s using companies across multiple US industries and does not investigate the underlying reasons why a firm engages in risky behaviour. More recent studies (Fiegenbaum & Thomas, 2004; Bromiley, 1991) have found that there is a positive association between risk and performance when companies operate above a positive reference point to their industry, and similar to Bowman's findings, a negative risk-performance relationship when companies operated below the industry reference point. Bromiley (1991) deduced that those firms performing poorly (below the industry reference point) seek more risk to "catch up", but that their risk-taking results in a further reduction in performance, even when controlling for past performance, industry performance and organisational slack.

Fiegenbaum and Thomas (2004) explain this low performance by a lack in what they see as two crucial components for achieving growth when risk-taking, a risk seeking culture as well as a viable competitive advantage (Thomas & Pollock, 1999). Unsuccessful firms without viable competitive advantages may take strategic risks but often end up with even lower returns as they are not able to offer the market enough substance or value. They also tend to "react" and

repeat the strategies they have tried in the past by taking “bad” risks (Bromiley, 1991). In contrast, well performing firms with a competitive advantage reach higher returns at comparatively lower risk.

Figure 2.5.4: Conditions for organisational return-risk outcomes (Fiegenbaum & Thomas, 2004)



However there is no simple risk-performance relationship. Performance is multidimensional. Performing well in one area may cost the effective performance in another area (Lima, Basso & Kimura, 2009). For example, many companies will sacrifice profitability and efficiency temporarily to ensure growth or to acquire key capabilities that can lead to future market power.

Performance is ultimately a combination of the interplay between country, industry and individual firm factors and their accompanying risk. Along with factors such as firm concentration, life cycle and the reference factors Bromiley (1991) identified, industry and home country environment also have a powerful influence on the profitability and inherent risk of firms within the marketplace (Bowman, 1980; Bromiley 1991) and must be controlled for when studying the

risk-performance relationship. Given the many elements at play, it is likely that there are differences in the impact of risk factors on performance between emerging market firms and firms from developed markets. Therefore the following hypothesis is given:

Hypothesis 3: *The factors associated with risk-taking impact performance differently when coming from emerging market firms in comparison to developed market firms.*

As managers from emerging markets encounter risk on a more frequent basis, they are likely to be better skilled at managing risk and interpreting risk and opportunity in their environment than their developed market peers. The better management is at assessing essential environmental parameters and responding appropriately, the higher the firm's performance is likely to be. With effective risk management, firms minimise their downside losses while only acting on opportunities that create business value. Given these variables the following hypothesis is proposed:

Hypothesis 4: *Firms from emerging markets demonstrate higher levels of performance than firms from developed countries at equal levels of risk.*

2.6. Conclusion

In conclusion, firms and people follow similar behaviour when confronted with risk. When times are good and they are satisfied, they tend to be risk averse,

and when times are bad they tend to be risk seeking to accelerate their growth. However “good risks” are ultimately dependent upon three factors; firms’ successful strategic responses to their environments, the development of FSAs in line with these strategic responses and a risk seeking culture focused on innovation, speed and flexibility. EMNEs may have a distinctive advantage in this regard. Their survival is dependent on their ability to respond to the continual challenges in their environment. To succeed they need to adapt and learn to manage the inherent risk of operating in an emerging economy. When successful, this may lead to an important competitive advantage over traditional multinational firms from developed countries who have not had as much exposure to risk and also have legacy cultural systems which make responding to opportunities a slow and political process.

3. Research questions

This study will investigate whether emerging market firms have a different risk profile than firms from developed markets as a result of learning to deal with the volatility in their national business environment. In addition it will examine whether the risk factors researched in developed markets have a similar influence on the risk-taking propensity of firms from emerging markets and their resulting performance (Bromiley, 1991; Shoham & Fiegenbaum, 2002; Fiegenbaum & Thomas, 2004; Bowman 1984). Finally it will assess whether emerging market firms perform better than developed market firms at equal levels of risk. This research specifically aims to test the following four hypotheses:

3.1. Does the challenging business environment in emerging markets lead to greater average risk-taking by EMNEs than MNEs from developed markets?

Hypothesis 1: The null hypothesis states that there is no statistical difference in the level of risk-taking between firms coming from challenging emerging market environments (R_{EMNE}) in comparison to firms coming from stable developed market environments (R_{MNE}). The alternative hypothesis states that there is a statistical difference in the level of risk-taking between firms coming from challenging emerging market environments (R_{EMNE}) in comparison to firms coming from stable developed market environments (R_{MNE}).

H_0: $R_{EMNE} - R_{MNE} = 0$

H_a: $R_{EMNE} - R_{MNE} \neq 0$

3.2. Are the factors that have the greatest influence on the level of risk-taking different for emerging market firms than for firms from developed markets?

Hypothesis 2: The null hypothesis states that there is no statistical difference in the factors that influence the risk-taking of emerging market firms (FR_{EMNEs}) over firms from developed markets (FR_{MNEs}). The alternative hypothesis states that there is a statistical difference in the factors that influence the risk-taking of emerging market firms (FR_{EMNEs}) over firms from developed markets (FR_{MNEs}).

H_0: $FR_{EMNEs} - FR_{MNEs} = 0$

H_a: $FR_{EMNEs} - FR_{MNEs} \neq 0$

Table 3.2.1: Hypothesised effect of reference point factors on EMNE and MNE risk-taking

Determinants of risk-taking	EMNEs	MNEs
Challenging emerging environment	+	n/a
High past performance	+	-
Low past performance	+	+
Survival level performance	-	-
Expectations of the firm	+	-
Aspirations of the firm	+	+
Available slack	+	-
Recoverable slack	-	-
Potential slack	+	-
Degree of Internationalisation	+	n/a
Independence	+	-

Firm age	+	n/a

3.3. Do the factors associated with risk-taking impact performance differently when coming from emerging market firms in comparison to developed market firms?

Hypothesis 3: The null hypothesis states that there is no statistical difference in the effect of risk-taking factors' influence on the level of performance of emerging market firms ($FP_{EMNEs)}$ over firms from developed markets (FP_{MNEs}). The alternative hypothesis states that there is a statistical difference in the effect of risk-taking factors' influence on the level of performance of emerging market firms ($FP_{EMNEs)}$ over firms from developed markets (FP_{MNEs}).

H_0: $FP_{EMNEs} - FP_{MNEs} = 0$

H_a: $FP_{EMNEs} - FP_{MNEs} \neq 0$

Table 3.4.1: Hypothesised effect of reference point factors on EMNE and MNE performance

Determinants of future performance	EMNEs	MNEs
Risk	-	-
Expectations of the firm	+	-
Aspirations of the firm	+	+
Available slack	+	-
Recoverable slack	-	-
Potential slack	+	-
Degree of Internationalisation	-	+
Independence	+	-
Firm age	+	+

3.4. Do EMNEs from emerging countries demonstrate higher levels of performance than firms from developed countries at equal levels of risk?

Hypothesis 4: The null hypothesis states that there is no statistical difference in the level of performance between firms coming from emerging market environments (P_{EMNEs}) when operating at equal levels of risk as firms coming from developed markets (P_{MNEs}). The alternative hypothesis states that there is a statistical difference in the level of performance between firms coming from emerging market environments (P_{EMNEs}) when operating at equal levels of risk as firms coming from developed marked environments (P_{MNEs}).

H_0: $P_{EMNEs} - P_{MNEs} = 0$

H_a: $P_{EMNEs} - P_{MNEs} \neq 0$

4. Research methodology

4.1. Research setting

This study aims to compare risk-performance factors between emerging and developed market economies. As such, six representative countries were chosen, three from emerging markets and three from developed markets. These included:

Emerging markets chosen	Developed markets chosen
India	United States
Malaysia	United Kingdom
South Africa	Germany

Countries can be challenging to classify as emerging markets as there is no standard definition of what an emerging market is. However, most agree on three fundamental traits inherent to emerging markets. Emerging market economies have high growth levels (measured by GDP growth rate), lower levels of absolute economic development (measured by GDP per capita) and a free market structure (Aybar & Thirunavukkarasu, 2005). Furthermore, the sample countries of India, Malaysia and South Africa were classified by the UNCTAD annual World Investment Report (2010) as important emerging market economies, as well as by Morgan Stanley Capital International (MSCI Barra, 2010). These emerging economies are spread across two continents with Malaysia and India representing important countries in Asia, the world's

largest current hotbed of economic growth. The chosen countries also represent various levels of emerging market development.

India with 1.2 billion people has a GDP per capita of $1,031. Typical of many emerging market economies, the quality of its infrastructure ranks among the lowest in the world and it also ranks very low in corruption measures, burden of government regulation and labour market efficiency (World Economic Forum, 2010).

South Africa with a GDP per capita of $5,824 (World Economic Forum, 2010) is a developing market with a deep divide between the rich and poor (Goldstein & Prichard, 2008). It also suffers from a severe skills shortage, low technological advancement, a strong natural resource focus and relatively protected markets (Klein & Wöcke, 2007). These are challenges that are fairly representative of many emerging market contexts.

Malaysia is the most advanced emerging market of the three but still suffers from high business costs for crime and terrorism, high incidences of malaria and HIV infection, trade barriers and low female participation in the workforce (World Economic Forum, 2010). It has 27.5 million people with a GDP per capita of $6,897.

Except in rare cases from South Africa, the emerging market firms chosen are “infant MNEs” in comparison to the “mature MNEs” of the developed markets (Ramamurti, 2009). India, one of the BRIC emerging market countries, has

seven companies on the Global 500 list, and Malaysia has one firm (CNN Money, 2010). South Africa does not feature on this list.

In contrast, the United States, the United Kingdom and Germany are well known “mature MNE” markets. The United States is the single largest source of FDI outflow in the world, with Germany the 3rd largest and the UK the 5th largest (UNCTAD, 2010). The United States is also home to the most significant number and reach of multinational organisations in the world. In fact 140 of the Global Fortune 500 firms are American. Germany boasts 39 MNEs on the list and the UK possesses 26 (CNN Money, 2010).

By using a six country comparison of generalised emerging and developed markets, the study controls for the effects of specific country differences which may skew the results. It also allows the researcher to have a rich data set to focus on those factors that are most common and relevant (Klein & Wöcke, 2007).

4.2. Research design and methodology

The research design was a quantitative, causal time series study using primary financial data incorporated into Philip Bromiley’s (1991) Risk-Performance causation model in a scientific replication study. Scientific replication studies test past published research to determine whether the insights still hold true given different data sets from a different population (Hamermesh, 2007). Only by testing data from more than one economy and from more than one time

period can hypotheses that are intended to be general be proven to be applicable beyond one economic context (Hamermesh, 2007). While a classic model with hundreds of citations, Bromiley's original research was done almost twenty years ago and only contained data from manufacturing firms located in the United States. In contrast, this study will use a pooled cross-sectional time series model dating from 2005 to 2009 which compares developed market and emerging market multinational firms from the mining, manufacturing and business services industry sectors. The longitudinal element of the study incorporating time lags is needed to test the risk-performance causal relationship which may span many years (Bromiley, 1991). In addition, three further variables, (1) the degree of internationalisation, (2) firm age and (3) firm independence have been added to Bromiley's original model, based on more recent research findings regarding these variables' causal relationship to risk-taking and performance (Henderson & Benner, 2000; Aybar & Thirunavukkarasu, 2005; Aguiar *et al,* 2009). 'Investment in innovation' was originally desired as an independent variable but would have limited the sample size severely so was discarded.

Causal studies strive to determine cause-and-effect relationships between independent and dependent variables (Zikmund, 2003). In this case, the two dependent variables are the level of risk a firm takes and the level of performance it achieves. Bromiley's model determines this dependent risk-performance link to be a function of a firm's past performance, the industry's performance, the expectations and aspirations of a firm and the firm's level of slack (Bromiley, 1991; Fiegenbaum & Thomas, 2004). To this, the additional

independent variables of firm age, independence and degree of internalisation have been added. By measuring the associated influential direction and intensity of these variables against risk and performance, a causality link can be established. Table 4.2.1 outlines the formula used to measure risk and performance as a function of the above contributing factors

Table 4.2.1: Equations used in hypothesis testing based on Bromiley's prior research

Equations	
Risk	$Risk_{t+1} = b_0 + b_1 performance_t + b_2 expectations_t + b_3 aspirations_t + b_4 slack_t + b_5 internationalisation_t + b_6 firmAge_t + b_7 independence_t + e,$
Performance	$Performance_{t+2} = c_0 + c_1 performance_t + c_2 expectations_t + c_3 aspirations_t + c_4 slack_t + c_5 internationalisation_t + c_6 firmAge_t + c_7 independence_t + c_8 risk_t + c_9 risk_{t+1} + e,$
where:	b_i = parameters to be estimated, c_i = parameters to be estimated, t = year,
and:	e= error term.

4.3. Unit of analysis and population

The unit of analysis for this research is the multinational firm.

The population consists of all listed South African, Malaysian and Indian multinational companies (emerging market representation), as well as all listed US, German and United Kingdom multinational companies (developed market representation), as identified by the Osiris database with financial data available for years 2005-2009 in the three chosen industry groups. South African, Malaysian and Indian companies are considered firms with historic roots in these emerging markets regardless of where they are currently registered or listed (Goldstein & Prichard, 2008). For example for the purpose of this study, Anglo American is considered a South African company even though it is registered and listed outside of South Africa.

Multinationals are interesting study subjects due to their importance in both their local and global economies. For example, while US multinationals make up less than 1% of American firms, they contribute 31% of the growth in real GDP and 41% of the growth in labour productivity, resulting in a significant "multiplier effect" throughout the American economy. They also account for close to half of America's exports, impacting the trade balance positively (McKinsey Global Institute, 2010).

4.4. Sample method and size

The final sample consisted of 516 firms from six countries within the North American, European, African and Asian continents. Each firm belonged to one of three broad and representative industries including mining, manufacturing

and business services as defined by the two-digit Standard Industrial Codes (SIC) classification system in table 4.4.1.

Table 4.4.1: 2-digit SIC industry classification system of sample industries

Mining categories	Manufacturing categories	Business services category
10 Metal mining **12** Coal mining **13** Oil and gas extraction **14** Mining and quarrying of non-metallic minerals, except fuels	**33** Primary metal industries **34** Fabricated metal products, except machinery and transport equipment **35** Industrial and commercial machinery and computer equipment **36** Electronic and other electrical equipment and components, except computer equipment	**73** Business services

The original sample contained 786 prospective companies based on the top 50 companies by revenue in each of the three industry clusters above from six countries (India, South Africa, Malaysia, Germany, the UK and the USA). To remain in the final sample, companies needed complete financial data covering the five year period from 2005-2009 and have services or products that matched the two-digit SIC classification system. Observations with leverage over four times the average leverage were eliminated to minimise the effect of extreme outlier behaviour on the data (Bromiley, 1981). The final sample for analysis contained 516 companies. Each of the qualifying firms were used in the final analysis rather than a random selection from this sample to ensure the industry within the country was adequately covered and that there would be

large enough sample sizes for statistical relevance. Table 4.4.2 illustrates the change between the original and final datasets used.

Table 4.4.2: Table of original and final sample counts

	Business services		**Manufacturing**		**Mining**		
	Original dataset	Dataset used	Original dataset	Dataset used	Original dataset	Dataset used	Total per country
India	50	30	50	37	50	28	95
S. Africa	35	27	30	18	36	20	65
Malaysia	50	30	50	41	18	8	79
Germany	50	33	50	35	17	3	71
UK	50	38	50	35	50	25	98
USA	50	30	50	47	50	31	108
Total	**285**	**188**	**280**	**213**	**221**	**115**	**516**

Given the continually changing nature of EMNEs, the most recent years for which data was available was chosen, despite the implications of the lower sample size this would imply and despite the unusual effects that the global recession in 2008-2009 may have had on the data. Due to data access and financial data needed, the sample group did not contain unlisted companies. In addition the sample group did not contain companies less than five years old, as the gap between making decisions and experiencing the results of these decisions can span many years.

4.5. Data gathering process

The top 50 multinational firms within the six targeted countries and three targeted industries described above were downloaded from the Osiris database.

Alternative databases such as McGregor's BFA, I-Net Bridge and the ISI Emerging Market database were used to spot-check financial data collected as well as to fill in any gaps that appeared for key companies.

In as many cases as possible, multiple indicators were used to proxy firm reference points such as performance, risk and slack to control for any inconsistencies from using just one measure and to highlight different aspects of reference points. For example, ROA, ROE, and ROS, while all measuring firm performance, do so in slightly different ways by demonstrating the returns on different sources of capital. The chart below describes the indicators used to test the paper hypotheses:

Table 4.5.1: Proxies for risk and performance variables

Firm specific risk variables	**Proxies**				
Performance	ROA	ROE	ROS		
Risk	sd ROA	sd ROE	sd ROS	Equity price vol.	Beta
Expectation	Ind avg ROA	Ind avg ROE	Ind avg ROS		
Aspiration - above industry	ROA x 1.05	ROE x 1.05	ROS x 1.05		
Aspiration - below industry	Ind avg ROA	Ind avg ROE	Ind avg ROS		
Aspiration - bankruptcy	past ROA	past ROE	past ROS		
Slack - Available	current ratio				
Slack - Recoverable	Other op. items/Sales				
Slack - Potential	D/E	Solvency			

	ratio
Degree of internationalisation	Foreign sales/sales
Investment in innovation	R&D/Sales

Firm specific control variables

Firm age	No. years	
Diversification	Div_0	Div_1
Developed market	Dev_0	Dev_1
BVD Degree of independence	A-D	
Industry	Ind_XX	

Industry variables

Performance	ROA	ROE	ROS
Broad industry	Mining	Manufacturing	
Narrow industry	Ind_XX		

Country variables

Classification	Emerging	Developed

While risk is intangible and therefore complex to measure, researchers have historically used the volatility of returns (variance or standard deviation of ROE, ROA or ROS) or systematic risk (beta) to quantify uncertainty in company income streams (Bowman, 1980; Bromiley, 1991; Nickel & Rodriguez, 2002). However some have criticised these measurements as leading to artificially low risk-return relationships (Sieler, 2008), so a series of studies have been conducted to determine whether variance and standard deviation are appropriate measures of risk. Miller and Bromiley (1990) examined multiple potential risk measurements and found the variances and standard deviations

of returns held up against other more independent measures of income stream uncertainty, even when used to predict performance from one five year period to another. Therefore given limited access to alternative measures of risk such as the variance of stock market analyst projections, the standard deviation of returns was used in this study.

The following chart describes how each of the eight reference point factors comprising the risk-performance relationship were measured based on available primary data. The chart also notes the justification for each choice used. Finally, control variables including industry type, ownership control and firm age were used to segment the aggregated findings.

Table 4.5.2: Variable factors influencing risk (Bromiley, 1991)

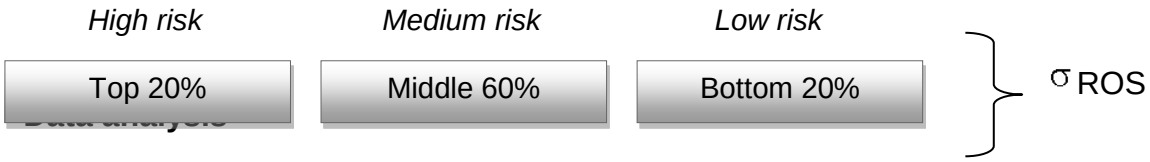
Variables	**Measurement method**	**Measurement method justification**
Risk*	Risk = Standard deviation of ROA, ROE, ROS Systematic risk = firm beta Equity price volatility	Past researchers used variance or standard deviation of ROE, ROA, ROS or systematic risk (beta) to represent uncertainty in income streams. The greater the standard deviation, the less predictable the income stream and the more risk a firm has taken on.
Performance 1) Firm level 2) Industry level	1) Performance firm level: Firm's ROA, ROE, & ROS 2) Performance industry level: average ROA, ROE, & ROS for all publicly listed firms in an industry.	Three measures are used to control for any inconsistencies from using just one measure. All are commonplace measures of firm performance.
Expectation of firm	Expectation = industry average performance ROA, ROE, ROS	Firms expect to perform at least as well as their industry.

Aspiration of firm	Aspiration of firms performing below industry average: industry average performance (ROA, ROE,& ROS). Aspiration of firms performing above industry average: past firm performance (ROA, ROE, ROCE & ROS) x (1.05). Aspiration of firm at bankruptcy level: Previous year performance. If negative = 0.	Firms performing below industry levels likely aspire to reach industry performance levels. Firms performing above industry levels aspire to improve their current performance even more and are not interested in only reaching industry levels (Bromiley, 1991; Fiegenbaum & Thomas (2004). Firms performing at survival/ bankruptcy level aim for previous year performance if positive. If negative, aspire to at least break even.
Slack: 1) Available 2) Recoverable 3) Potential	1) Available slack = current ratio 2) Recoverable slack = other operating items/sales 3) Potential slack = debt to equity ratio	1) Current ratio indicates the level of cash liquid assets available for immediate investment. 2) Debt to equity ratio represents a lack of potential slack. 3) Interest coverage represents the presence of potential slack (i.e. firms with high interest coverage have more slack as they can take on additional debt if needed).
Degree of internationalisa-tion**	Internationalisation = foreign sales/ sales	Most common used measure of the degree of firm internationalisation (Aybar & Thirunavukkarasu, 2005).
Degree of independence**	BVDep Independence indicator A = no shareholder with 25% or more firm ownership B = no direct ownership above 50% C = collective ownership 50%+	A high degree of independence occurs when no single stakeholder has more than 25% of firm ownership, in contrast to a low degree of independence where one single party has 50% or more

	D = direct ownership 50%+ U = unknown ownership (excluded from calculation)	direct firm ownership. The more centralised ownership is, the more likely companies are to take longer term risks.
Firm age**	Firm age = 2010 – year of incorporporation	Commonplace calculation of firm age. Older firms may be less inclined to take risks.
Control variables 1) Country 2) Industry 3) EMNE of MNE	1) India, South Africa, Malaysia, Germany, UK and USA 2) SIC 2-digit classifications of mining, manufacturing and business services industries. 3) Developed or emerging market.	1) One country controls for the effects of differences between emerging market countries. 2) Comparing firms within industries controls for industry effects. Three industries enable cross industry comparison. 3) Lower performance likely in developed markets due to higher cost structures.
* Risk is measured by the standard deviation of performance indicators in contrast to Bromiley's original model due to data access limitations of stock analyst projections of EPS for all six countries ** These variables were not contained within Bromiley's original model but were included to support the emerging market context of the research		

Next, to compare the levels of risk between emerging markets and developed markets, all firms within the three industries were placed into one of three separate portfolios based on their level of risk-taking (standard deviation of ROS). The medium risk portfolio contained 60% of the variability spread, with the high and low risk portfolios each containing 20%. The count of firms within each portfolio was then divided by the total base to find the relative percentage of firms that fell within each of the risk categories. The comparative performance of the firms within each of these portfolios was also tested.

Figure 4.5.1: Risk portfolio composition



4.6. Data analysis

Keeping with Bomily's (1991) original model, multivariate stepwise regression analysis with two sided hypothesis tests were conducted for hypotheses two and three. Stepwise regression explains the linear relationship of the independent variables listed in table 4.5.2, on the dependent variables of risk or performance in their respective equations from table 4.2.1 (Albright *et al*, 2009). Data was processed using R project by a statistician. Results from emerging market firms' risk and performance profiles were then compared with those of developed markets firms by both country and industry.

A one tailed, two-proportion z-test was used to compare the differences between sets of proportions of risk portfolios for hypothesis one. Finally Mann-Whitney nonparametric tests were used to assess whether the differences between emerging market and developed market samples were statistically significant for hypothesis four.

4.7. Research limitations

- ***Industry analysis:*** The original study conducted by Bromiley (1991) only examined manufacturing companies as he believed that industry types had profoundly different risk-performance profiles and therefore could not be used to provide aggregate risk performance results. Sieler (2008) also found that

organisational context had a significant effect on international performance, which suggests that performance will differ across industry type and geographic region. While all multinational firms will be divided into manufacturing, mining or business services, this represents only a small sample of possible firms.

- ***Unlisted company selection:*** Research has shown unlisted companies as more risk seeking due to their freedom from the scrutiny of outside investors expecting short term results (Aguiar *et al,* 2009). However due to inaccessible data on unlisted companies, these are not represented in the sample. In addition, only listed companies in which a complete set of primary data can be found will be included in the study.

- ***Family owned businesses:*** Due to a less liquid shareholding and deep familial ties, family owned businesses are generally able to commit to long term investment horizons, giving them the freedom to invest long term and take substantial risks if they see the opportunity (Aguiar *et al,* 2009). However due to the unavailability of familial ownership data, these are not isolated in the sample.

- ***Dated risk model:*** Bromiley's model, while continually cited as an important model on risk, was developed in 1991 for use in a developed market environment and may not be as useful when applied to an emerging market context almost twenty years later. However, comparisons to Bromiley's original data by either more current developed market multinationals or by current emerging market multinationals is interesting in its own right. In addition, new

variables have been added to Bromiley's model to ensure its applicability to an international emerging market context.

- ***Intangible variables:*** Variables like risk and a firm's level of aspiration are notoriously challenging to measure (Yiu *et al*, 2007). While the measurements used have substantive theory behind them, there are numerous ways to measure these variables which would likely produce a variation in results.

- ***Endogeneity between independent and dependent variables****:* It is assumed that the independent variables used in the stepwise regression analysis are in fact independent. However, many strategic management studies suffer from potential endogeneity between their independent and dependent variables (Yiu *et al*., 2007).

- ***Skewness*****:** Henkel (2000) found that skewness has a significant negative impact on the results of the risk-return relationship and that left-skewness in particular needed to be unravelled from the equation for greater accuracy. Henkel did not determine how this should be done however.

- ***Backward looking*****:** Like most research studies within international business academia, this research looks at the past to uncover underlying patterns of firm behaviour, which may not predict future events. However business managers are concerned with how the decisions they make today will create the firm's future (Ramamurti, 2009).

- ***Time period chosen*:** The study covers the most recent time frame for which data was available. During the 2005-2009 study period the largest global economic recession occured since the 1930s. This has a unique impact on the study results and they therefore may not be generaliseable in normal economic conditions.

5. Research results

5.1. Discussion of final measurements used and study time frame

Six different predictive variables for risk were used in the final analysis, including the standard deviation of return on sales (ROS), return on equity (ROE), return on assets (ROA), firm beta, equity price volatility, and the variance of security analysts' estimation of EPS. Beta, equity price volatility and the variance of security analysts' estimation of EPS had limited database sizes and were therefore only used as independent variables when executing the multivariate stepwise regression equation for hypotheses three. Results generally agreed across all three of the remaining risk measures (standard deviation of ROS, ROE, ROA), however standard deviation of ROS had the best overall fit to the dataset, especially for emerging market firms. For this reason and for presentation considerations, this measure will therefore be used as the measure for risk in the discussions below.

A similar approach was taken to select the best measurement for comparing firm performance. Return on sales had the best fit for emerging market firms, while return on equity had the closest fit for developed market firms based on p-value significance. However due to the specific research focus on the emerging market context, ROS was chosen as the final performance variable for presentation and analysis.

The study followed the most recent time frame for which data was available. Within the 2005-2009 five year study period, the largest global recession since the 1930s hit the world. While this research does not specifically address risk-taking in troubled macroeconomic conditions, the effects of this period are pronounced on the data and tell a unique story.

5.2. Hypothesis 1: Comparing emerging versus developed MNE risk levels

The first hypothesis tests whether the challenging business environment in emerging markets leads to greater risk-taking by emerging market firms than by firms from developed markets. It is well known that emerging markets are more volatile environments in which to conduct business due to a range of social and institutional challenges (Khanna & Palepu, 2006), but does this environmental volatility translate into greater risk-taking at the firm level?

A two-proportion z-test was performed to determine whether the results were statistically significant. A one-tailed test was appropriate as the hypothesis aimed to test whether there was a statistically significant proportion of EMNEs at higher levels of risk (rather than lower levels of risk) over MNEs from developed markets.

This test is appropriate for hypothesis one as the dataset met all four conditions for the two-proportion z-test. The samples were independent from one another, the samples were random from the greater population, each sample contained

at least five successes and five failures, and finally the population size was at least ten times larger than the sample size (Albright *et al*, 2009).

A one-tailed hypothesis test does not show any statistical difference between the count of EMNE and MNE firms within the high, medium or low risk categories. The only statistical significant difference between the two geographic sets is found in the low risk category for business services, in which there are 24% more MNE firms than EMNE firms.

Table 5.2.1: Hypothesis and confidence interval results for EMNE & MNE firm distribution in risk portfolios

	Business services			**Manufacturing**			**Mining**		
	High risk	Med risk	Low risk	High risk	Med risk	Low risk	High risk	Med risk	Low risk
EMNEs (%)	0.29	0.28	0.43	0.21	0.22	0.56	0.41	0.29	0.30
MNEs (%)	0.14	0.19	0.67	0.19	0.27	0.54	0.46	0.27	0.27
difference between EM & Dev (%)	0.15	0.09	-0.24	0.02	-0.05	0.02	-0.05	0.02	0.04
Hypothesis test									
Standard error of sample distribution	0.24	0.24	0.58	0.20	0.25	0.55	0.44	0.28	0.29
Standard error dif. Between proportions	0.14	0.13	0.10	0.12	0.12	0.09	0.14	0.16	0.16
z-test statistic	1.03	0.70	-2.36	0.17	-0.38	0.27	-0.38	0.11	0.22
p value for one-tailed test	0.83	0.76	0.01*	0.57	0.35	0.60	0.35	0.54	0.59

*statistically significant

Figures 5.2.2-5.2.5 illustrate the results of the spread of EMNE and MNE firms in each risk portfolio category. The largest percentage of firms from both emerging and developed markets fell in the low risk category (45% and 53% respectively) based on the standard deviation of their annual ROS. Industry appears to be a far more substantial predictor of firm risk than whether a firm is from a developed or emerging market. For example, both the business services and manufacturing industries show roughly the same distribution of EMNE and MNE firms between the high, medium and low risk categories, with the low risk category capturing the majority of firms. Mining in contrast has the majority of both EMNE and MNE firms in the high risk category with equal spread in the other two categories. Even still, EMNE firms do appear to take on slightly more risk with 25% more EMNEs in the aggregated high risk portfolio and 8% more in the medium risk portfolio although these levels are not statisitically significant.

Figure 5.2.2: EMNE vs. MNE aggregated risk profile comparison

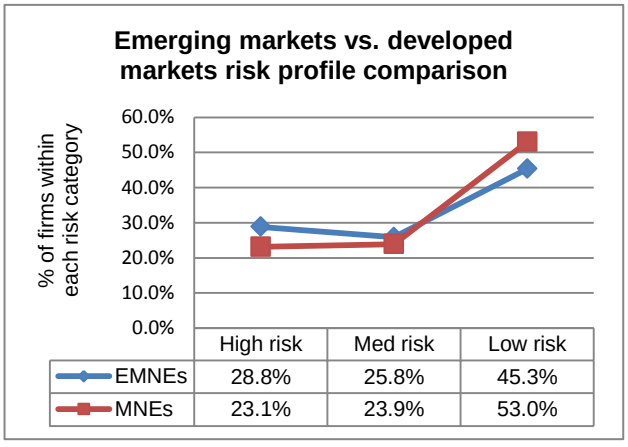


Figure 5.2.3: EMNE vs. MNE risk profile comparison in the business services industry

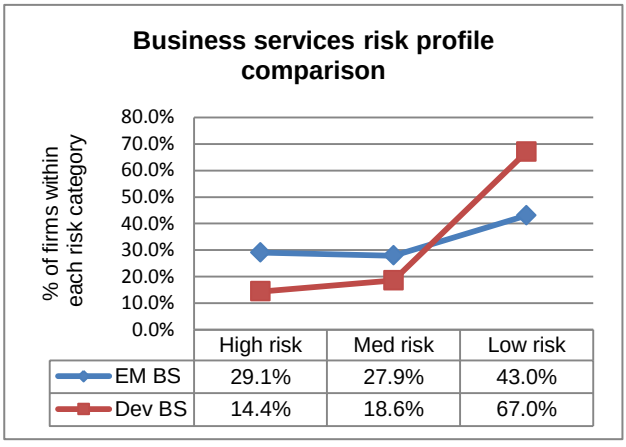


Figure 5.2.4: EMNE vs. MNE risk profile comparison in the manufacturing industry

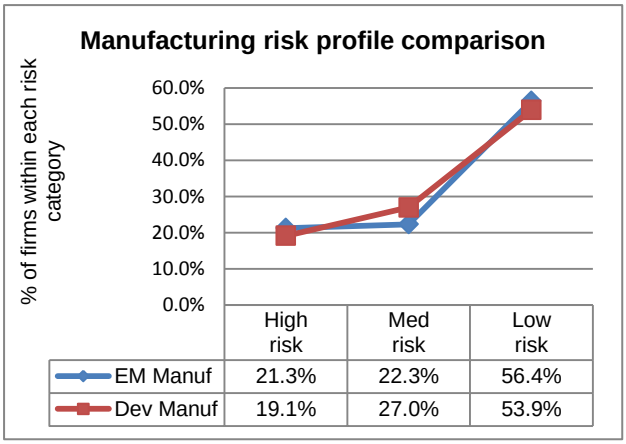
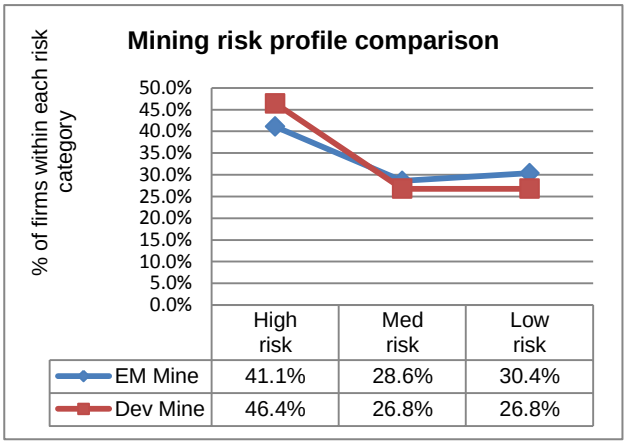


Figure 5.2.5: EMNE vs. MNE risk profile comparison in the mining industry



In conclusion, hypothesis one theorised that the environmental instability in emerging markets would lead EMNEs into operating at greater risk levels than their developed market counterparts. However, the results from hypothesis one found that although there is a slightly higher concentration of EMNE firms operating in high and medium risk categories, there is no statistical difference in the level of risk-taking between firms coming from challenging emerging market environments in comparison to firms coming from stable developed market environments. Based on these results, the null hypothesis H_0 can be accepted. The majority of firms, regardless of their origin, strive for low risk levels. In fact, while the low risk level category under analysis only encompassed 20% of the returns volatility spread, 45% of EMNEs and 53% of MNEs operated in the low risk level category.

5.3. Hypothesis 2: Comparing emerging versus developed MNE risk-taking factors

While hypothesis one tested whether emerging market firms operated at riskier levels than developed market firms and found that they do not, hypothesis two

examines the effect that known risk drivers have on both EMNE and MNE firms' propensity to take risks. If EMNE managers perceive the risks inherent in their business environment differently and accept a higher level of risk when making decisions, then there should be a distinction between the level and types of drivers that motivate risk-taking between EMNEs and MNEs.

Multivariate stepwise regression was used to test hypothesis two. Multivariate stepwise regression identifies how a single variable, the amount of risk taken, is dependent on other potential independent risk driver variables (Albright *et al*, 2009). This method allows one to not only identify the most important predictor variables for firm risk-taking but also establish whether such variables have a positive or negative influence and their approximate persuasive strength. The model determines a regression line that can then be used to predict future risk-taking based on the best discovered combination of dependent variables.

Stepwise regression is an appropriate test for hypothesis two as it conveys the relationship between potential risk drivers and firm risk-taking. It also mimics the research originally performed by Bromiley (1991) from which this study is replicated.

All stepwise regression models went through three tests; the Jarque Bera Normality test, the Breusch-Pagen Homoschedacity test and the Phillips-Peron Root test. The Jarques Bera Normality test is used to discern whether the data follows a normal distribution. The Breusch-Pagen Homoschedacity test analyses whether the variances around each data point are the same and

therefore the dataset is homoscedastic. If this test fails, there is likely an overestimation of goodness of fit as measured by the Pearson coefficient. Finally, the Phillips-Peron Root test determines whether the model has left important explanatory variables out of the equation.

5.3.1. Aggregate risk drivers

Interestingly, EMNE risk drivers are identical to Bromiley's (1991) original findings twenty years ago which were based on American industrial firms (see table 5.3.1 below). However developed market firms now differ substantially from Bromiley's findings. These results show that regardless of emerging or developed markets, there is a negative relationship between performance and risk and a positive relationship between aspiration and risk. However there are contrasting risk driver influences for all other variables. These results will be broken down into more detail next.

Table 5.3.1: Aggregate EMNE and MNE risk-taking driver results in comparison to Bromiley's original findings

	Bromiley (1991)	Developed MNEs	Emerging EMNEs
Constant	+	+	+
Performance	-	-	-
Expectation	+	-	+
Aspiration	+	+	+
Slack avail.	-	+	-
Slack recov.	-	+	-
Slack pot.	-	+	-
Firm age	n/a	+	-

Independence	n/a		+	-
International	n/a		n/a	-

contrasting drivers to Bromiley's findings

Performance

Bromiley (1991), in support of previous theory by Fiegenbaum and Thomas (2004), Bowman (1980) and Singh (1984), found that low past firm performance had a positive effect on risk-taking as firms tried to "catch up" to their peers. Likewise high past performance had a negative effect on risk-taking as firms desired to maintain the *status quo* which had led to their higher performance levels. Both emerging and developed market firms continue to mimic this negative performance - risk relationship.

Expectation and aspiration

Bromiley (1991) had originally hypothesised that current firm performance below aspirational levels would increase a firm's level of risk-taking as managers took risks to reach a higher target performance level (Shoham & Fiegenbaum, 2002). Likewise if managers' expected their firms' performance to improve naturally, they had less incentive to take on any additional risk. Contrary to his hypothesis on a negative expectation-risk relationship, he found that higher expectations did in fact increase the amount of risk taken. Emerging market firms follow Bromiley's results; however, developed market firms find a negative expectation-return relationship in support of Bromiley's original hypothesis.

Slack

Excess slack enables firms to respond to opportunities in their environment quickly. If slack levels are below a “target” level of slack, managers may try to improve current levels by taking additional risks. In addition, if slack levels are far above such target levels, managers are likely to feel pressured to find ways to put this slack to use by taking on new investment opportunities (Lima, Basso & Kimura, 2009). Such high levels of slack can signify lower performance as this slack could have been used to boost performance. However a firm needs a sufficient level of slack to buffer against cash flow challenges. Slack is a balance between the risk of cash flow shortages and the opportunity of further growth. Bromiley (1991) found a negative relationship between slack and risk-taking in agreement with the findings from emerging markets. By contrast, developed market firms show a positive slack-risk relationship.

Firm age, independence and internationalisation

MNEs show a positive relationship between the age of firms and the level of risk they take, whereas EMNEs show the opposite. Emerging market firms show greater risk levels when ownership is spread across many shareholders as opposed to developed market firms which show greater risk levels at tight ownership structures. Finally there is a negative internationalisation-risk relationship for emerging market firms meaning that the greater their income from countries outside of their home country market, the less risk they take on. This may be partly explained by diversification effects in their income streams.

5.3.2. Industry risk drivers

When comparing risk drivers between EMNEs and MNEs at an industry level, the same trend continues, albeit at different intensities depending on the particular industry.

Business Services

The strongest statistically significant risk drivers for EMNEs in business services were the level of internationalisation, past performance and performance expectation. The greater the turnover outside the EMNE home country (level of internationalisation), the less risk EMNEs took. Past performance also had a negative risk relationship. Only the level of expectation for future performance had a strong, significant and positive influence on firm risk. For developed market firms, recoverable slack was the strongest predictive variable for the regression equation.

Table 5.3.2: EMNE vs. MNE business service industry risk drivers

	BUSINESS SERVICES			
	Emerging		**Developed**	
Constant	-7.921		2.475	
Performance	-3.892	*	-0.258	
Expectation	1.228	**	-0.074	
Aspiration	0.413		0.068	
Slack available	0.126		-0.012	
Slack recoverable	1.417		6.258	**
Slack potential	-0.001		0.000	
Firm age	-0.142	*	0.032	**
Independence	0.357		-0.041	

International	-13.710	**	n/a
Data fit			
R-squared	0.520		0.236
Adjusted R-square	0.360		0.162
p-value	0.000		0.000

*Significance codes: <.01 '**' <.05 '*'*

While the regression model for business services is a significant predictor of firm risk-taking dimensions with a p-value less than 0.001, it only explains 52% and 24% of the variation in the sample for emerging and developed markets respectively. It passes both the test for normality and the test for encompassing significant explanatory variables. However it fails the homoschedacity test indicating that there is not a uniform scatter of variable points around the regression line (Albright, Winston, & Zappe, 2009).

Manufacturing

Manufacturing follows a slightly different trend than the aggregate comparison between emerging market and developed market risk-taking factors. Neither model fits the data particularly well with r^2 of .27 and .34 for emerging markets and developed markets respectively. In fact only two variables are significant within the model for emerging markets; expectation and aspiration. However the data does pass both the normality and unit root test and comes very close to passing the homoschedacity test for the developed market regression equation.

Similar to business services, the largest single influence on risk-taking for developed MNE manufacturing firms is recoverable slack with a significant coefficient estimate of -7.5. Intriguingly, in business services recoverable slack had a positive slack-risk relationship whereas in the manufacturing industry it has a negative slack-risk relationship. Past performance also has a negative, significant influence on risk-taking for MNEs but not for EMNEs. In contrast, expectation and aspiration are the only statistically significant risk drivers for EMNEs, however both have relatively weak influences.

Table 5.3.2: EMNE vs. MNE manufacturing industry risk drivers

	MANUFACTURING			
	Emerging		**Developed**	
Constant	3.976		6.444	**
Performance	0.911		-1.86	**
Expectation	-0.551	**	-0.132	
Aspiration	0.609	**	0.414	**
Slack available	-0.538		0.36	
Slack recoverable	-2.057		-7.4 66	**
Slack potential	-0.022		0.042	**
Firm age	-0.002		-0.002	
Independence	-0.017		0.124	
International	-2.323		n/a	
Data fit				
R-squared	0.27		0.338	
Adjusted R-square	0.152		0.259	
p-value	0.008		0	

*Significance codes: <.01 '**' <.05 '*'*

Mining

The regression equation fits the emerging market mining data best with an r2 of .857 for emerging markets and .543 for developed markets. However the emerging market dataset fails the normality test. Both datasets fail the homoschedacity test although only marginally.

The mining industry displays significant differences between EMNE and MNE risk drivers. For example performance has a very strong positive effect for risk-taking for MNEs, but a strong negative effect for EMNEs. In contrast both expectation and aspiration have significant positive influences on risk-taking for MNEs, but negative influences for EMNEs.

Similar to the business services analysis, the strongest significant risk driver for EMNEs in the mining industry is the level of internationalisation, although in the mining industry this influence is positive. In addition, all levels of slack have a negative influence on risk-taking for EMNEs.

Table 5.3.2: EMNE vs. MNE mining industry risk drivers

	MINING			
	Emerging		**Developed**	
Constant	18.211	**	4.906	
Performance	-4.698	**	9.721	*
Expectation	0.019		-0.327	**
Aspiration	0.275	**	-0.477	**
Slack available	-0.743		1.621	
Slack	-5.315		4.123	

recoverable				
Slack potential	-0.1	**	-0.069	*
Firm age	-0.067		0.033	
Independence	-0.013		0.383	
International	4.828	*	n/a	
Data fit				
R-squared	0.857		0.543	
Adjusted R-square	0.79		0.497	
p-value	0		0	

Significance codes: <.01 '**' <.05 '*'

5.3.3. Country risk drivers

The various industries were then broken down by country to assess what influence country dynamics within emerging and developed markets had on firm risk. Tables containing a detailed itemisation of these results are located in Appendix five. When compared side by side within each industry, the three developed countries had similar risk driving factors. However the emerging market country effects were not as homogenous. There do appear to be country specific effects for certain variables regardless of the industry. Table 5.3.5 outlines these general tendencies.

Table 5.3.5: Country specific risk drivers beyond industry influence

Emerging			**Developed**		
India	South Africa	Malaysia	Germany	UK	USA
Expectation +	Performance –	Expectation –	Slack avail. +	Firm age + Independ.	Aspiration +

Slack avail. + Slack recov. + Slack pot. – Internat. +	Expectation + Slack (all) -	Aspiration +	Slack pot. + Firm age + Independ. +	+	Slack avail. – Slack recov. +

In support of hypothesis two, there is a clear difference in the factors that influence risk-taking between emerging market and developed market firms. Regardless of the industry and its effects, in every single EMNE-MNE industry comparison expectation, firm age, independence and available slack had contrasting influences between EMNEs and MNEs. It is likely that there is a country effect between sample countries as well. The strongest drivers for influencing the level of risk taken, regardless of industry, were the (1) degree of internationalisation, (2) recoverable slack and (3) past firm performance. Interestingly, these variables did not have a consistent positive or negative influence between industries.

Based on these results, H_a is supported. Clearly there are differences in the factors that influence the risk-taking of emerging market firms over firms from developed markets.

5.4. Hypothesis 3: Comparing emerging versus developed MNE risk drivers on performance

Similar to hypothesis two, hypothesis three uses multivariate stepwise regression to examine how the same risk drivers analysed previously impact firm performance and specifically whether there are differences in performance between firms from emerging and developed markets. If EMNEs' risk drivers are different from the risk drivers for MNEs, it is likely that these drivers also impact performance in unique ways.

Hypothesis four was tested in a similar manner to hypothesis two, using Bromiley's (1991) research design as the basis. This design assumes that a firm's risk-taking, aspirations, expectations and slack will all have an effect on future firm performance. To this list of variables, firm age, the level of internationalisation and firm independence were added in line with hypothesis two. This stepwise regression equation used all six measures of risk as independent variables, although only the significant ones will be reported to simplify presentation of the data. Again the Jarque Bera Normality test, the Breusch-Pagen Homoschedacity test and the Phillips-Peron Root test were incorporated to test for normality, homoschedacity and completeness of the data.

5.4.1. Aggregate performance - risk drivers

Stepwise regression automatically removes any unnecessary (insignificant) variables. The grey squares in Table 5.4.1 mark these insignificant variables at an aggregated performance level. Far more risk driver variables impact firm performance for EMNEs than for MNEs, although this changes at an industry

level. Overall the template risk drivers were not as meaningful as predictors for firm performance as they were for firm risk-taking.

Table 5.4.1: Aggregate EMNE and MNE risk-taking drivers influence on performance

	Emerging EMNEs	Developed MNEs
Constant	-	+
Expectation	+	
Aspiration	-	
Slack available		
Slack recoverable		
Slack Potential		
Firm age		-
Independence	-	
International		
Risk equity		-
Risk ROA/ROE	-	
Risk (t+1)	-	+

5.4.2. Industry performance-risk drivers

Table 5.4.2: EMNE vs. MNE risk driver influences on performance across industries

	BUSINESS SERVICES				MANUFACTURING				MINING			
	Emerging		Developed		Emerging		Developed		Emerging		Developed	
Constant	-26.16	**	6.31	**	16.58	**	21.26	**	-0.94		130.36	**
Expectation	0.62	**			-0.84	**	-0.25		1.93	**		
Aspiration	-0.39	**	0.22		-0.12	**					-2.61	*
Slack available	1.93	**					-2.23	**				
Slack recoverable					10.02	*					53.62	*
Slack potential	0.39	**			-0.08		-0.15	**	0.59	**		
Firm age	0.14	*	-0.05	**			-0.02				-0.54	**
Independence	-0.53								-1.22	*	-1.59	
International									-22.29	**		
Risk ROE/ROA			390.88	**	-515.55	*			-1.48	*	-2256.91	**
Risk EPS	0.75	**	-0.08	**							0.95	**
Risk Equity					-15.95	**	-11.95	**			-338.79	**
Risk ROE/ROA (t+1)	-1.38	**	-390.86	**	516.03	*					2270.17	**
Data fit												
R-squared	0.803		0.506		0.314		0.551		0.521		0.866	
Adjusted R-square	0.754		0.476		0.244		0.514		0.423		0.81	
p-value	0	**	0	**	0	**	0	**	0	**	0	**

Significance codes: <.01 '**' <.05 '*'

Business services

In the business services industry, the most significant predictive risk drivers on EMNE performance are available slack and current firm risk-taking. With the more volatile emerging market environments, slack enables firms to respond proactively to both the opportunities and risks they encounter, giving them greater strategic options. It also gives a buffer against cash flow problems that may arise. In addition, if firms expected to perform well, this had a mildly positive impact on performance, but if they aspired to do well this interestingly had a negative impact on performance.

Although the MNE regression equation had an r^2 of .5, it gave very little insight into developed market risk factor influence on firm performance. Past risk and current risk cancelled out each other and the significant risk drivers of firm age and EPS volatility had a minimal effect on MNE performance.

The stepwise regression equations are significant beyond 1% confidence levels and pass all integrity tests, except for the normality test for the emerging markets. They also explain 80% and 51% of the variation in the sample for emerging and developed markets respectively.

Manufacturing

The model does not fit the dataset particularly well in the manufacturing industry with an r^2 of .31 for EMNEs and .55 for MNEs. However the model is significant beyond a 1% confidence level and passes all integrity tests.

The most significant determinant of firm performance for both EMNEs and MNEs in the manufacturing industry is the level of past risk taken as measured by equity price volatility. The more volatile the company share price for both EMNEs and MNEs, the lower the firm performance. This however is the only significant risk driver they share in common.

Another substantial risk driver for EMNEs is recoverable slack. All slack gives emerging market firms added flexibility to respond to challenges within their environment. Recoverable slack with its resource spend on sales force commissions and client entertainment can help a firm grow aggressively, potentially explaining its positive impact on EMNE manufacturing performance. To a far lesser extent, expectation also has an impact on EMNE performance, although negative.

The most significant risk driver for MNEs after equity price volatility is available slack. Available slack's negative impact on performance may signify established developed market firms' mature or declining life cycle. For example such firms may hold cash rather than invest in new opportunities that would take their businesses forward.

Mining

The data for MNEs in the mining sector fits the regression model particularly well with an r^2 of .87 (EMNE r^2 is .52). The model is significant beyond a 1% confidence level and passes all integrity tests, except the EMNE regression fails the homoschedacity test.

The only shared risk driver variable of significance for EMNEs and MNEs in the mining industry is the level of independence. For both EMNEs and MNEs the more centralised the business ownership, the better the performance. This may be due to the necessity of leadership continuity when undertaking significant capex outlays dependent on long payback periods to establish new mines.

For EMNEs, the most significant variable is the degree of internationalisation which has a negative influence on performance. Establishing mines in new geographic sites is expensive and can take 15 years or more to recapture the investment. Presumably the more sites a mining firm has, the more debt they take on and the less their overall performance. This may be especially true for emerging market firms who might venture into more risky geographic areas. Past risk-taking also has a negative influence on performance for EMNEs, but expectation has a positive influence. Still, both of these risk drivers have a far smaller influence than the degree of internationalisation.

By contrast the most significant risk drivers impacting MNE performance are equity price volatility, recoverable slack and to a far lesser extent, aspiration.

Similar to manufacturing, the more volatile stock prices are for MNE mining companies, the worse their predicted performance. Recoverable slack also had a strong influence, although positive.

5.4.3 Country performance - risk drivers

The various industries were then broken down by country to assess what influence country dynamics within emerging and developed markets had on firm performance. Tables containing a detailed itemisation of these results are located in Appendix six. When compared side by side within each industry, some countries such as India in the EMNE grouping and both the UK and USA in the MNE grouping shared some of the same performance drivers, regardless of the industry examined. This may be due to country or even firm size effects in the data. The other three countries however appeared strongly dependent on industry effects as summarised below in table 5.4.3.

Table 5.4.3: Country specific risk drivers beyond industry influence

Emerging			**Developed**		
India	South Africa	Malaysia	Germany	UK	USA
Expect. + Aspiration – Slack pot. – Independ. – Risk –	Risk + Slack av. + Slack rec. –	Slack avail. – Slack pot1. +	Risk (ROE) – Risk (ROA) +	Expectation – Aspiration + Slack pot. – Risk (ROE) + Risk EPS – Risk (t+1) –	Expectation + Slack avail. + Slack recov. + Risk EPS –

In summary, EMNE and MNE firms share few performance influences based on their risk drivers. In fact the only shared EMNE-MNE risk drivers were the negative influence on performance for both equity price volatility in the manufacturing industry and degree of independence in the mining industry. Therefore there is evidence to support the H_a that the factors that influence performance differ between emerging market firms and developed market firms. In addition, these findings give some evidence in support of Bowman's (1980) assertion of a negative risk-performance relationship for both EMNE and MNE firms.

5.5. Hypothesis 4: Comparing emerging versus developed MNE overall performance based on risk levels

The final hypothesis, hypothesis four, tested whether firms from emerging markets demonstrate higher levels of performance than firms from developed countries at equal levels of risk. If EMNEs are indeed more comfortable with managing higher levels of risk due to their challenging environmental contexts, they should have higher levels of performance than developed market firms at the same levels of risk.

To test this hypothesis, aggregated firm performance was compared across each of the risk level portfolio groups for analysis. Whereas hypothesis one tested the spread of the count of firms clustered within each risk level, hypothesis four tested the comparative performance of those firms within each risk level.

Mann-Whitney non-parametric tests were performed to judge whether performance averages between EMNEs and MNEs were statistically different enough to support the alternative hypothesis. The Mann-Whitney test is appropriate when comparing two independent, unpaired groups of sample data as it tests the central tendency between two populations (Albright *et al*, 2009).

While both the Mann-Whitney non-parametric test and the independent group parametric t-test compare the central tendency between two independent samples, the Mann-Whitney test was chosen for testing hypothesis four because it does not require normality as an underlying assumption and is therefore more widely applicable. In contrast, for the t-test to be appropriate both populations must be normal with equality of variances (Albright *et al*, 2009). Uneven sample sizes using the t-test can also be problematic. While the Mann-Whitney test is not as powerful as the t-test, with large sample sizes such as in the dataset used in testing hypothesis four, the difference in power is minimal. In addition, because the Mann-Whitney test relies on fewer assumptions, its findings are more robust.

5.5.1. Aggregate performance

Overall, the best performing firms from both emerging and developed markets were in the medium risk category with an average of 12% ROS. Of these, emerging market firms averaged 13% ROS and developed firms averaged 11%. In keeping with hypothesis four, emerging market firms performed better in the

high risk category than they did in the low risk category, although the reverse was true for developed market firms. Importantly, emerging market firms performed 37% better than developed market firms at high risk levels, 23% better than developed firms at medium risk levels and 11% better than developed market firms at low risk levels although this higher performance was only statistically significant at medium risk levels.

Figure 5.5.1: Aggregate comparison of EMNE and MNE performance at high, medium and low risk

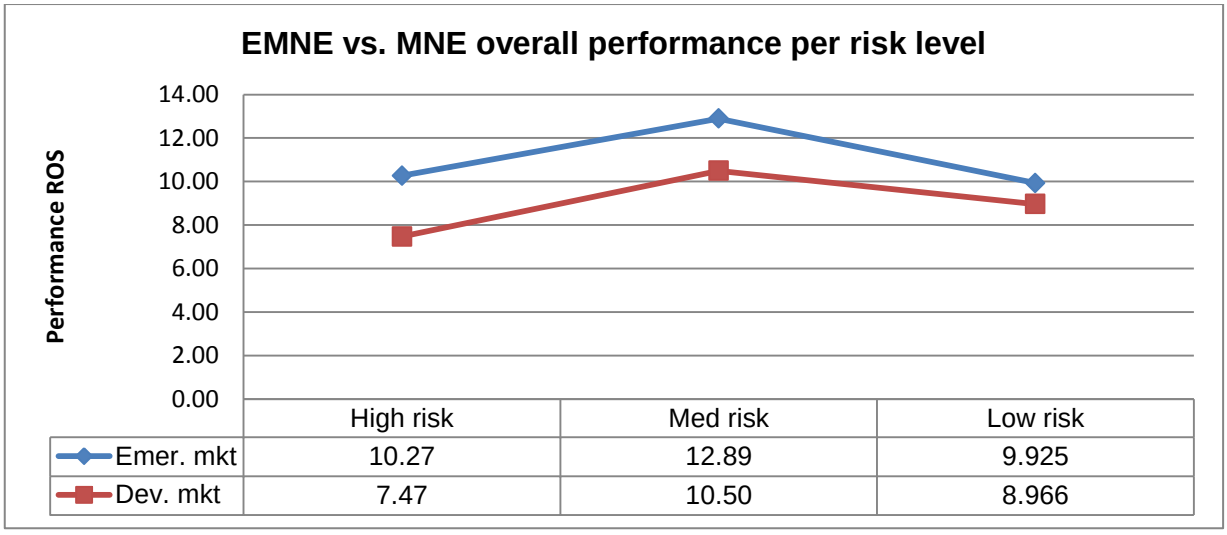


Table 5.5.1: Summary results of Mann-Whitney test for aggregated performance by risk level

	High risk	*Med risk*	*Low risk*
Number of Values in Ranking	651	624	1289
p-Value	0.5992	0.000	.3730
Null Hypoth. at 5% Significance	Don't Reject	Reject	Don't Reject

5.5.2. Industry performance

When comparing performance between EMNEs and MNEs at an industry level, the same trend continues, however at different intensities depending on the

particular industry. EMNEs comparative performance was strongest in business services, followed by manufacturing and then mining. EMNE comparative performance was also strongest at the high risk level and lowest at the low risk level following the prediction of hypothesis four. At the high risk level, EMNEs had 21% higher performance than MNEs in the business services industry, 4.6% higher in mining and a small 0.3% higher in manufacturing. However at the low risk level, MNEs performed 0.2% higher than EMNES in manufacturing and 0.4% higher in mining but underperformed their developed market peers in the low risk business services category. Table 5.5.2 below summarises these aggregated results.

Table 5.5.2: EMNE performance above (below) MNE performance by industry sector at various risk levels

	High risk	*Med risk*	*Low risk*
Business services	20.7	0.7	0.7
Manufacturing	0.3	1.4	(-0.2)
Mining	4.6	(-0.3)	(-0.4)

Next, industries are examined individually in more detail.

Business services

EMNEs appear to have greater performance than MNEs at all risk levels in the business services industry as illustrated in figures 5.5.2-5.5.4. In fact, their comparative performance was 137% higher than MNEs at the high risk level, 71% higher at the medium risk level and 65% higher at the low risk level. However both EMNEs and MNEs had their highest ROS at the low risk level

(14.7% EMNE and 8.9% MNE) followed by the medium risk level (12.7% EMNE and 8.2% MNE). In addition, while the performance of both EMNEs and MNEs decreased when the global financial crisis hit in 2008, the EMNEs' performance decrease was more gradual than the sharp reactions of MNEs. In the low risk category, EMNEs had very little performance drop at all with a relatively small decline from 15% ROS at the height to 14.5% ROS at the low in 2009.

Figure 5.5.2: EMNE vs. MNE business service industry comparison in high risk portfolio over

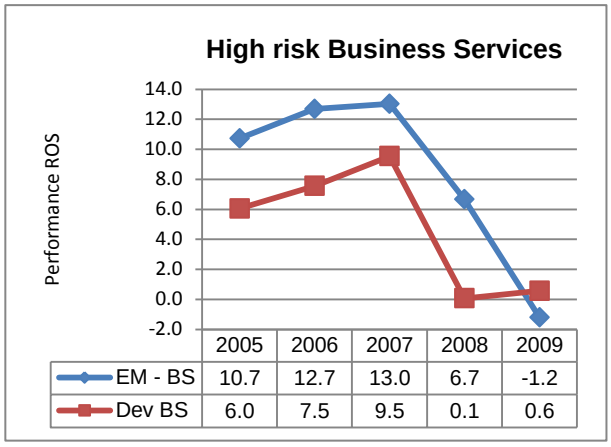


Figure 5.5.3: EMNE vs. MNE business service industry comparison in medium risk portfolio

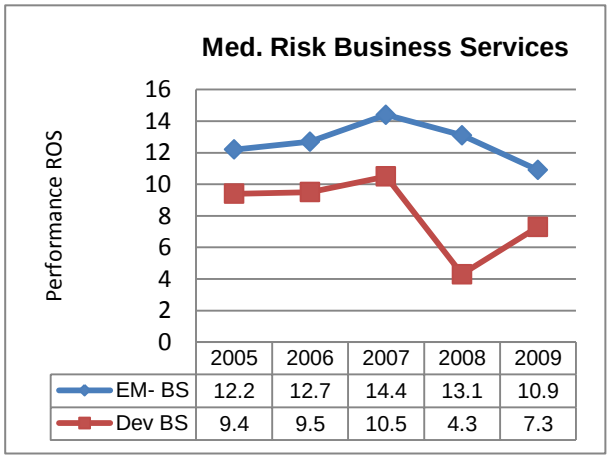
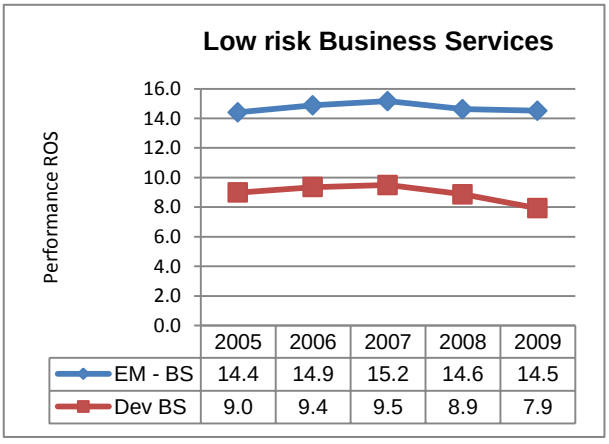


Table 5.5.3: Summary results of Mann-Whitney test for Business services industry by risk level

	Low risk	*Med risk*	*High risk*
Number of Values in Ranking	545	185	195
p-Value	< 0.0001	0.0042	0.2636
Null Hypoth. at 5% Significance	Reject	Reject	Don't Reject

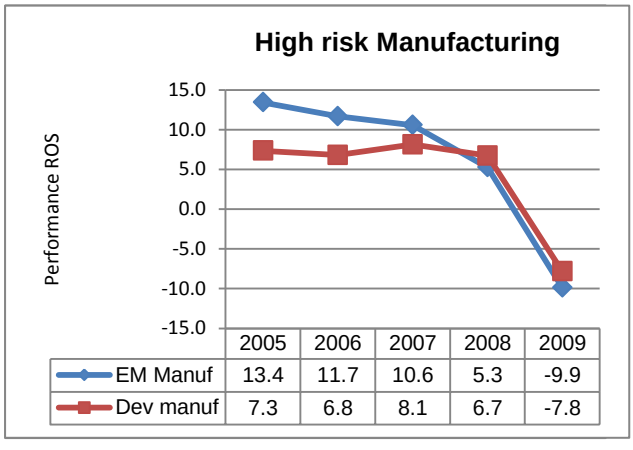
Figure 5.5.4: EMNE vs. MNE business service industry comparison in high risk portfolio over



Manufacturing

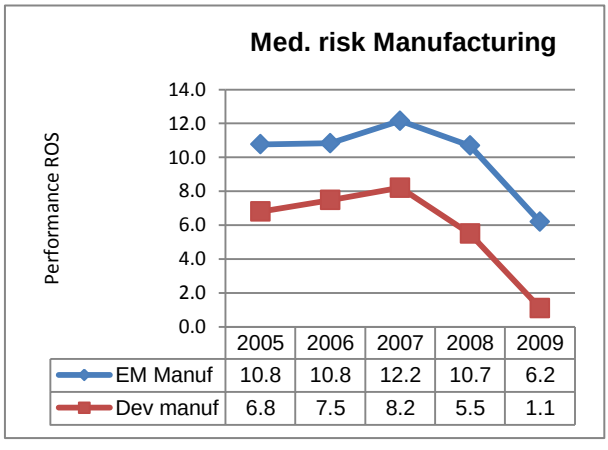
While the results for EMNE manufacturing performance at different risk levels are not as strong as those seen in the business services, they still follow a similar trend. EMNEs appear to have greater performance than MNEs at both the high and medium risk levels in the manufacturing industry, but not the low risk level as illustrated in figures 5.5.5-5.5.7. In fact, their comparative performance was 28% higher than MNEs at the high risk level, 142% higher at the medium risk level but was 16% below MNE performance at the low risk level. In this industry, EMNEs have their highest ROS performance at the medium risk level (10%) followed by the low risk level (7%) and then the high risk level (6%). In contrast MNEs have their highest ROS performance at the low risk level (9%) followed by the medium risk level (6%) and then the high risk level (4%). Unlike the business services industry, both EMNEs and MNEs appeared to follow the same relative decline in performance when the financial crisis struck in 2008.

Figure 5.5.5: EMNE vs. MNE manufacturing industry comparison in high risk portfolio over



	2005	2006	2007	2008	2009
EM Manuf	13.4	11.7	10.6	5.3	-9.9
Dev manuf	7.3	6.8	8.1	6.7	-7.8

Figure 5.5.6: EMNE vs. MNE manufacturing industry comparison in medium risk portfolio

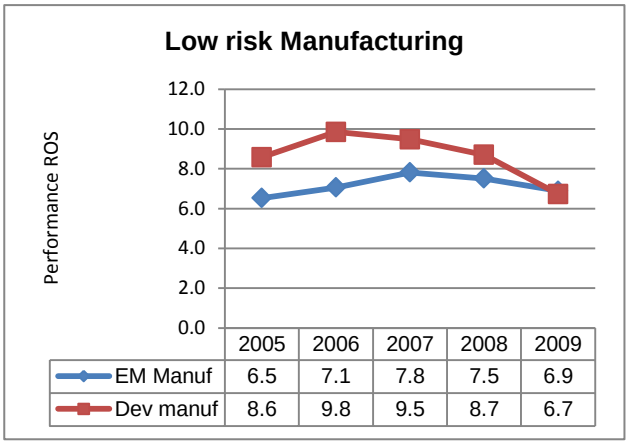


	2005	2006	2007	2008	2009
EM Manuf	10.8	10.8	12.2	10.7	6.2
Dev manuf	6.8	7.5	8.2	5.5	1.1

Table 5.5.4: Summary results of Mann-Whitney test for Manufacturing industry by risk level

	Low risk	*Med risk*	*High risk*
Number of Values in Ranking	580	260	225
p-Value	0.9989	0.0003	0.8228
Null Hypoth. at 5% Significance	Don't Reject	Reject	Don't Reject

Figure 5.5.7: EMNE vs. MNE manufacturing industry comparison in low risk portfolio over



Mining

Mining shows a different pattern than both business services and manufacturing. Still at high risk level, EMNEs in this industry perform significantly better than MNEs, but at both medium and low risk levels, developed market MNEs perform better by 26% and 35% respectively. At high risk, the variability of returns for the developed market industry is extreme whereas the variability for EMNEs is more stable despite the volatility of individual firm returns that compose this portfolio. EMNEs performed highest at 17% average ROS in both the high and medium risk categories. Their performance in the low risk portfolio is less than half of this at 7%. In contrast, MNEs perform highest at 23% average ROS in the medium risk category followed by the high risk category at 11.5% ROS and the low risk category at 11.4%.

Interestingly, as the financial crisis hit, EMNEs' performance hardly changed and actually grew marginally stronger in the low risk portfolio. MNEs however,

did experience a decline in performance, but this decline is not as severe as that seen in both the business services and manufacturing industries.

Figure 5.5.8: EMNE vs. MNE mining industry comparison in high risk portfolio over time

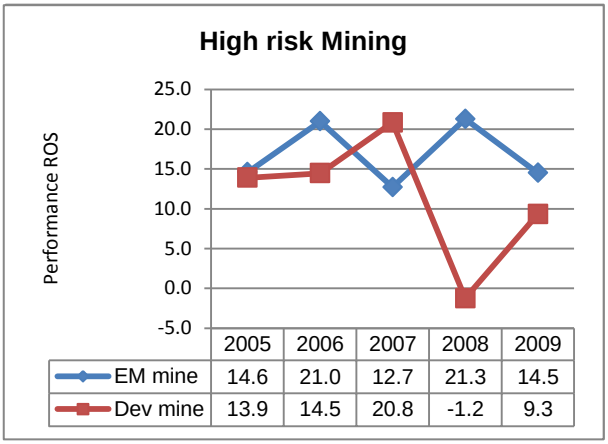


Figure 5.5.9: EMNE vs. MNE mining industry comparison in medium risk portfolio over time

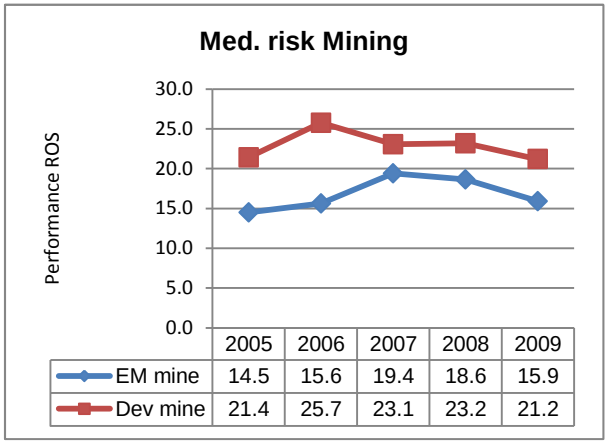
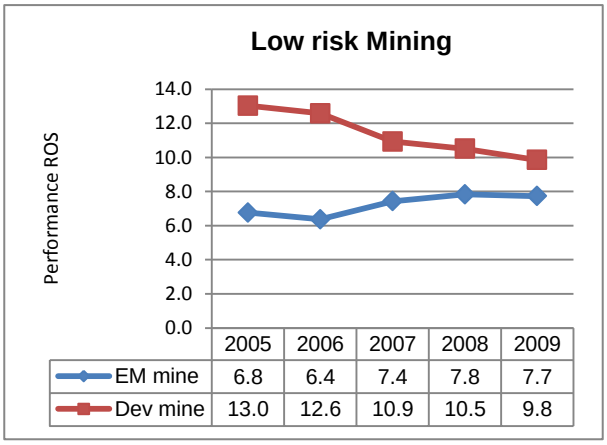


Table 5.5.5: Summary results of Mann-Whitney test for Mining industry by risk level

	Low risk	*Med risk*	*High risk*
Number of Values in Ranking	161	154	238
p-Value	1.0000	0.7838	0.1789
Null Hypoth. at 5% Significance	Don't Reject	Don't Reject	Don't Reject

Figure 5.5.10: EMNE vs. MNE mining industry comparison in low risk portfolio over time



In conclusion, emerging market firms perform better at medium risk levels than firms from developed markets at a 95% confidence level, however differences in performance between EMNEs and MNEs at high and low performance levels are statistically inconclusive. Although high risk level performance is not statistically different, EMNE performance impact is still considerable and should

warrant further study. Based on these results, H_a is partially supported. For a further break down of the risk levels by year and by country, see Appendix nine.

5.6. Research results summary

The following table summarises the findings for each hypothesis in this section. Next, additional significant insights collected during the analysis are given.

Table 5.6.1: Hypothesis results summary

Alternative Hypothesis	Alternative Hypothesis supported or rejected
Hypothesis 1: The challenging business environment in emerging markets leads to greater average risk-taking by EMNEs than MNEs from developed markets.	**Rejected:** There is no statistical difference in the level of risk-taking between EMNE and MNE firms (although EMNEs are concentrated at slightly higher risk levels).
Hypothesis 2: The factors that have the greatest influence on the level of risk-taking are different for emerging market firms than for firms from developed markets.	**Supported:** There are significant differences in the factors that influence risk-taking between EMNE and MNE firms. In every EMNE-MNE comparison; (1) performance expectation, (2) firm age, (3) firm independence and (4) available slack had contrasting influences.
Hypothesis 3: The factors associated with risk-taking impact performance differently when coming from emerging	**Supported:** In most risk drivers except for past risk-taking, there are significant differences on their influence on EMNE and

market firms in comparison to developed market firms.	MNE performance.
Hypothesis 4: Firms from emerging markets demonstrate higher levels of performance than firms from developed countries at equal levels of risk.	**Supported** *(at medium risk levels):* EMNEs perform progressively better than MNEs as risk level increases (37% better at high risk levels, 23% better at medium risk levels and 11% better at low risk levels) although only performance at medium risk levels was statistically significant.

In addition, a number of key insights were found when analysing hypothesis results. The most important are summarised below:

- Firms, regardless of origin, prefer lower levels of risk.
- Firm industry appears to be a far stronger determinant of firm risk spread than home country origin.
- EMNEs risk drivers are identical to Bromiley's original findings but MNE risk drivers vary substantially (Bromiley analysed US manufacturing firms in the late 1980s).
- The strongest risk drivers were (1) degree of internationalisation, (2) recoverable slack and (3) past firm performance; however between industries these variables had different influences on risk-taking.
- EMNEs and MNEs share a negative risk-performance relationship (in support of Bowman's paradox).
- Firms, regardless of home country origin, perform best at medium risk levels.

6. Discussion of results

Four theoretical contributions emerge from this research for the growing body of work on the competitive advantages of emerging market multinationals as well as the risk-performance relationship. These findings will be explored in greater detail next.

- **Theme 1:** Emerging market environments do not result in greater risk-taking by firms (firm industry is a much stronger indicator of firm risk level), however there is evidence that emerging market firms handle higher levels of risk better than developed market firms, perhaps due to the experience they gain from handling the complexities in their environments. For example, EMNEs performed 37% better than MNEs at high risk levels, 23% better at medium risk levels and 11% better at low risk levels.

- **Theme 2:** Most firms, regardless of home country origin, strive for the lowest levels of risk, however firm performance is strongest at medium risk levels.

- **Theme 3:** Emerging market firms react identically to risk drivers that developed market firms responded to twenty years ago, but developed market firms no longer respond the same way. EMNE risk drivers vary consistently from MNE risk drivers in (1) performance expectation, (2) firm age, (3) firm independence and (4) available slack

- **Theme 4:** The strongest drivers for risk-taking, regardless of home country origin, are (1) degree of internationalisation, (2) recoverable slack and (3) past firm performance, however between industries these variables had different influences on risk-taking.

6.1. Theme 1: Home country environment's influence on risk-taking

Contrary to hypothesis one, this research found that the notoriously volatile and challenging business environments within emerging markets do not lead emerging market firms to take on greater risk levels than peer firms from developed markets. That said, there are slightly higher percentages of EMNEs operating in high and medium risk categories, however these are not statistically significant and overall the largest percentage of firms from both emerging and developed markets operate at low risk levels. In fact, industry appears to be a far stronger determinant of firm risk level than home country environment. For example, firms in the mining industry displayed the reverse firm distribution between high, medium and low risk portfolios to those in the other two industry risk portfolios. The importance of an industry's influence on risk-taking has been highlighted in earlier research (Bromiley, 1991).

Even though emerging market environments do not lead firms to take on greater levels of risk, they may be an important training ground for business managers to learn how to manage risk well. Makhija and Stewart (2002) found that business managers' national environments play a fundamental role in their risk-related decision making. It can be argued that as a result of exposure to

higher levels of risk in emerging market home country environments, the firms that have survived, despite the institutional challenges, are more comfortable with and skilled at managing risk than their developed market peers, which is an important component of their greater performance. If these business managers are able to manage risk well, their firms will perform in medium or low risk portfolio categories despite the high risk environment they operate in as was seen in the results of Hypothesis one.

Such results support the theory proposed by Bowman (1980), Shapiro (1995) and Andersen, Denrell and Bettis (2007) that the goal of good business managers should be to simultaneously protect business by reducing risk level exposures while also finding ways to increase returns. This should be done by skilfully deciphering environmental signals quickly and correctly and then responding appropriately without putting the firm's health in jeopardy. Shapiro (1995) in particular believed that the sign of a good manager was his/her ability to reduce the level of firm risk over time. These views support Bowman's (1980) negative risk-return paradox that lower risk levels in fact lead to higher performance over time. If business managers from emerging markets encounter risk more frequently than business managers from developed markets (Khanna and Palepu, 2006), then they have greater experience with risk and may be more effective at managing risk. This may be why despite the volatile environments they operate in, they are able to stabilise their business performance to statistically match the risk spread of those in developed markets.

The key is in balancing firm exposure between risk and opportunity by managing those risks that a firm is exposed to well. For example risk management skills need to be coupled with the ability to interpret the risks and opportunities in the business environment (Andersen, 2009), find creative ways to work around constraints using only the resources at hand and then to adapt quickly and change course when needed (Verbeke & Brugman, 2007; Andersen, Denrell & Bettis, 2007).

The capability to adapt to the business environment can be a powerful competitive advantage beyond normal product/service competencies (Maranto-Vargas & Rangel, 2007) as this ability is difficult for developed market competitors to copy. MNEs often suffer from sluggishness, a rigid mindset, legacy issues and/or unbending structures and internal systems, which make strategic response difficult even if they are able to interpret environmental changes correctly (Aguiar *et al*, 2009).

The results from hypothesis five give evidence to support this view. Emerging market firms perform progressively better than developed market firms as risk level increases. For example, EMNEs performed 11% better than MNEs at low risk levels, 23% better at medium risk levels and 37% better at high risk levels across all industries. While only statistically significant at medium risk levels, these strong results, especially at high risk levels, warrant further research and give credence to the theory that the ability to manage risk may well be an important competitive advantage specific to emerging market firms who have survived despite their challenging business environments. This ability to

manage risk well is intangible and not easy to copy and therefore can be a sustainable competitive advantage against developed market competitors (Barney, 2001a). Such an advantage can also 'travel well' to other geographic environments and contexts. It also supports Ramamurti's (2009) view that the firm specific advantage (FSA) strengths EMNEs have often differ from those traditionally found in developed economies, but which are still important and even key to EMNE growing global success.

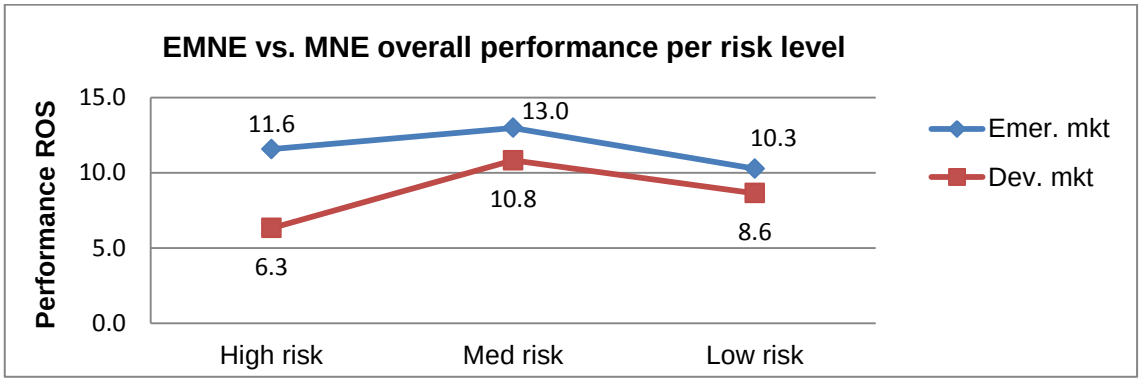
6.2. Theme 2: Performance at different risk levels

A second insight from this research was that despite home country origin, firms tend to strive for the lowest risk levels possible while the best returns are to be made at medium risk levels. In fact while the low risk portfolio category only encompassed 20% of the returns volatility spread, 45% of EMNEs and 53% of MNEs were housed in this portfolio. Despite this trend however, firms housed within the medium risk portfolio performed the strongest with an average of 12% return on sales (ROS) in comparison to both the low risk and high risk portfolio with 9.5% and 9% ROS respectively. Within the medium risk category, emerging market firms averaged 13% ROS and developed firms averaged 11% ROS.

Two important contributions are evidenced from these results. First, there is justification for Bowman's paradox in which high risk levels taken do not necessarily result in high returns, however this is not necessarily so for all levels of risk. Bowman (1980) bucked prevailing wisdom at the time when he

discovered a negative relationship between the amount of risk a firm took and its resulting performance. Before his pivotal study it was generally assumed that risk and reward had a positive relationship as rational decision makers were unlikely to take on additional risk if there were not a greater probability of higher returns than alternative less risky investments (Nickel & Rodriguez, 2002). Bromiley (1991) also found a negative relationship between risk and performance but was able to demonstrate that this effect was largely based on where firms stood in their industries. Firms that were performing below the industry average often took risks to 'catch up' to their peers, however these unsuccessful firms generally lacked a viable competitive advantage and were therefore unable to offer the market enough substance or value resulting in even lower returns (Fiegenbaum & Thomas, 2004). While Bowman's Paradox is evidenced in the high risk category, if Bowman's theory were correct it would follow that the low risk portfolio of firms would show the highest level of performance, yet this is not the case, which highlights the second point.

Figure 6.2.1: Comparison of EMNE and MNE performance at high, medium and low risk levels.



These results show that some risk-taking is better than a great deal of risk or very little risk. Even though the trend immediately following high past

performance in relation to competitors is to rest on what is working and avoid additional risk as much as possible (Fiegenbaum & Thomas, 2004; Bromiley, 1991), Yiu *et al* (2007) found that successful global competition is the result of corporate entrepreneurship which includes risk embracing activities such as innovation, venturing and strategic renewal.

The global stage intensifies competition and high performing firms must continually reinvent themselves to remain relevant and valuable in their markets because their most fierce competitors are already doing so. Such firms continually aspire to ever greater heights, setting themselves hard to reach goals and then either developing or acquiring the capabilities they need to reach their ambitions (Hamel & Prahalad, 1989). They don't take brash risks. Like Cosira in chapter 1, they may tiptoe into new risky environments and activities where risk averse firms would not dare to go, often following their customers, but only once they confirm future profitability do they commit significant resources to developing an opportunity. And as Sieler (2008) discovered, investment into value chain core capabilities enables MNEs to take advantage of economies of scale, quality control and personal flexibility to respond quickly to opportunities within their environments.

In conclusion, the best performing firms, regardless of whether they originated from emerging or developed markets, were clustered in the medium risk portfolio category, although the largest concentration of firms was found in the low risk category. This gave partial support to Bowman's paradox that higher risk resulted in lower performance, however the performance curve appears to

be curvature in nature rather than linear. Some risk is beneficial to firms most likely as long as it is concentrated in high return areas such as the development or acquisition of key strategic capabilities or assets.

6.3. Theme 3: EMNEs follow historic developed market risk drivers

One of the most interesting findings in the research is that emerging market firms react identically to risk drivers that developed market firms responded to twenty years ago in Bromiley's (1991) original study, but developed market firms no longer respond the same way (see Table 5.3.1). Bromiley's original research utilised data from manufacturing firms located in the United States, an unquestionably developed market. In his research, he found that all types of slack and past performance had a negative influence on risk-taking and that expectation and aspiration both had a positive influence on risk-taking, all of which continue to hold true for emerging market firms but most of which have changed for developed market firms. Twenty years later, all levels of slack now have a positive influence on risk-taking for developed market firms and expectation generally has a negative influence.

There has been much debate in emerging market strategy literature on whether EMNEs are simply at an earlier phase of the same evolution path as firms from developed economies (London & Hart, 2004). If this were so, EMNEs would be expected to follow similar incremental internationalisation and growth patterns as MNEs did years earlier. Some argue that this notion is an imperialist mentality assuming that the western way of transacting business is the best

way, where clearly emerging market firms are conducting business on their own terms and taking western businesses by surprise in the process (London & Hart, 2004).

What is thought provoking however, is that while many elements of EMNE competitiveness may be unique to this new breed of businesses, these results do support the notion that at least in terms of firm risk drivers, EMNEs react in the same way as earlier developed market firms. This may be due to the fact that EMNEs are relative latecomers in the globalisation game, and twenty years ago many firms from developed markets were not as sophisticated players in the global market space as they are today. Today's EMNEs are taking baby steps into internationalisation while their developed market peers face more sophisticated and large scale globalisation challenges (Ramamurti, 2009). Therefore these results may simply reflect similar stages in firm internationalisation development paths twenty years earlier rather than emerging market home country effects.

This variation in MNE responses to risk may also be indicative of macro changes in the global economy over the last twenty years as well as changes in stakeholder expectations of short term firm performance. Such mature MNEs in the most sophisticated stage of their development also no longer need to rely on capabilities particular to their home country environments (Ramamurti, 2009). All of these reasons may be alternative explanations for the changing nature of their risk-taking factors between the two study periods.

Next, each of the contradictory risk-taking factors between EMNEs and MNEs will be analysed in more detail. In every EMNE-MNE comparison; (1) performance expectation, (2) firm age, (3) firm independence and (4) available slack, had contrasting influences.

6.3.1. Performance expectation

The variable 'performance expectation' attempts to capture the level of performance that managers believe their firm will achieve given their activities at present without incurring new investments. In general, firms expect performance in line with the industry average and if already performing above industry average, they expect modest growth above their current performance levels of around 5% (Bromiley, 1991). If firms are in the red, they expect to at least break even in the future (Lehner, 2000).

This analysis found that the higher the level of expectation, the less risk that MNEs incur in all industries. This is in contrast to EMNEs which take on greater risks at higher expectation levels in business services and mining. This negative expectation-risk relationship seen by MNEs supports Bromiley's (1991) original hypothesis (which he disproved) that the more managers expect their firm performance to organically grow, the less incentive they have to take on additional risk. In addition, expectations for firm performance levels are generally lower in developed countries than in emerging markets given lower industry growth averages and lower costs of capital. In contrast, EMNEs in mining industries have significant capital expenditure needs and must borrow at

much higher rates. They are therefore expected to make a return at least a few percentage points above their current cost of capital, which may drive them to take on greater risk. EMNE business services must also stay relevant and therefore expected performance may be based on a need to constantly innovate. Perhaps psychologically in addition, when EMNE business managers expect their performance to improve they may become overly optimistic in their investment decisions (Kahneman & Lovallo, 1993). EMNE manufacturing displays the same tendencies as the pattern of MNE firms in the study, perhaps due to more consistent revenue streams secured by long term contracts leading to less need to incur additional risk.

6.3.2. Firm age

'Firm age' is the number of years a business has been in operation. This research found that younger firms were more likely to take risks in emerging markets while older firms were more likely to take risks in developed markets. Older more established firms in developed markets are more likely to have excess financial slack and a higher propensity to invest in growth initiatives (Hendersen & Benner, 2000) than emerging market counterparts. In contrast, younger EMNE firms are still growing and may take extreme risks to build or acquire core capabilities or market share (Lee & Slater, 2007) in comparison to more established EMNE firms. These firms are also in their initial stages of globalisation.

6.3.3. Firm independence

The variable 'firm independence' is based on the BvDEP Independence Indicator which classifies firms according to the degree of independence they have from their stakeholders. A high degree of independence occurs when no single stakeholder has more than 25% of firm ownership, in contrast to a low degree of independence where one single party has 50% or more direct firm ownership.

The analysis results indicate that manufacturing and mining EMNEs with a high degree of independence take greater risks than those with more concentrated control. MNEs in these same industries however take greater risks when they have more concentrated ownership structures. These results are in contradiction to the work done by Aguiar *et al* (2009) which found that more than half of the leading 100 EMNEs have centralised ownership structures in which original founders or family members still have significant control over firm activities. Many of the companies in their study were privately held and are therefore not represented in this study which only utilised publicly listed firms due to financial data access needs. They reasoned that this centralised ownership gave EMNEs a competitive edge as they could afford longer investment payback periods, had a higher inclination for risk-taking, and were protected from takeovers (Aguiar *et al*, 2009).

An alternative explanation to justify these findings may be that in support of Bowman (1980), Shapira (1995) and Andersen, Denrell and Bettis (2007), good

managers are able to reduce risk while preserving performance. Perhaps the best managers are indeed those with centralised control and the most personally invested in the success or failure of the venture, who are therefore cautious in their investment strategies. Again, manufacturing and mining are particularly capital intensive industries giving owner managers much more to lose if their decisions are faulty. Business services in contrast are not as capital intensive and therefore owner managers may have more incentive to take on additional risk.

6.3.4. Available slack

Available slack is the excess liquidity a firm has at its disposable, giving it the freedom and flexibility to take on additional debt (risk) to invest in new opportunities or to buffer against unexpected business challenges (Tan & Peng, 2003). Available slack is estimated using the financial current ratio which consists of "current assets/current liabilities" (Bromiley, 1991). Available slack is the most easily accessible form of slack and has therefore been shown to be less industry specific than potential or recoverable slack (Daniel *et al,* 2004).

In the emerging market manufacturing and mining industries, the more available slack a firm had, the less likely they were to take risks. This is in contrast to MNEs who took on more risk when they had greater access to available slack. Potential slack has been shown as an important resource to buffer EMNEs from environmental turbulence, thereby ensuring EMNE survival (Tan & Peng, 2003). Furthermore such 'unabsorbed' slack can be an important hard-to-imitate

competitive advantage for EMNEs (Barney, 2001a). Therefore, for EMNEs, the benefits of available slack may outweigh its costs, leading to the negative available slack-risk relationship for manufacturing and mining EMNEs. However MNEs do not have the same environmental challenges threatening their businesses and can therefore often utilise available slack in more productive ways. In addition, their stakeholders may demand short term performance gains that keep these business managers constantly on the lookout for the next big opportunity. In business services however, given the nature of the lower costs within the industry, less risk buffering may be required resulting in the positive available slack-risk relationship seen in the analysis.

6.4. Theme 4: Strongest drivers of risk-taking

The last theme outlines the strongest drivers for influencing the level of risk taken, regardless of home country or industry. These included: (1) degree of internationalisation, (2) recoverable slack and (3) past firm performance. Interestingly, these variables did not have a consistent positive or negative influence between industries.

6.4.1. Internationalisation

The degree of internationalisation measures the extent a firm collects turnover outside of its home origin country and is measured by “foreign sales/total sales”. Internationalisation can have both a positive and negative influence on risk-taking. By having multiple revenue streams coming from varied geographic

locations, firms diversify their income stream which should create greater stability if there are challenges in select country locations. However, investments in new geographic markets, especially in capital intensive industries or in initial internationalisation attempts, can be extremely expensive and can take many years until investment recoupment (Ramamurti, 2009). There is also likely to be income uncertainty for the first few years in any new international venture leading to greater risk.

In both the business services and manufacturing industries, EMNEs show greater internationalisation leading to less risk-taking. The reverse is true for the mining sector. Business services are less capital intensive and with the right communications infrastructure can often be provided in multiple geographic locations without the need to establish expensive satellite offices in host countries. Therefore it is likely that business services capture the benefits of international revenue stream diversification without the high associated capital risks of internationalisation, leading to a negative internationalisation-risk relationship. In contrast, mining can take fifteen plus years to recoup the substantial capex outlays needed to establish mines. Resources are also often located in politically unstable emerging market environments making the transactional costs of doing business higher. The mining industry is also subject to the volatility of international commodity prices regardless of location, all of which justify a positive internationalisation-risk relationship. Finally, manufacturing, similarly to business services, demonstrates a negative internationalisation-risk relationship likely due to more stable income contracts with buyers before establishing new manufacturing plants.

6.4.2. Recoverable slack

Recoverable slack had a surprisingly strong influence on firm risk-taking for both EMNEs and MNEs. Recoverable slack is measured by "other operating items/ sales". "Other operating items" includes additional firm expenses beyond those directly tied to product or service production and includes income statement items such as travel, entertainment, sales commissions and fuel. If a firm wants to aggressively grow its business it can increase it's spend in this area by recruiting a larger sales force. However there is a risk that the firm takes on this additional cost but does not achieve higher sales growth as a result. On the opposite extreme, when in a recession or cyclical downtime and sales are static, "other operating costs" is one of the first places financial managers look to cut costs in order to maintain current margin levels and stay profitable. Normally "other operating items" is expected to be as small as possible.

Andersen (2009) supports slack resources being invested in innovative efforts to ensure firms have strategic options as the environment warrants. Daniel *et al* (2004) agreed but found that both potential and available slack were more relevant to firms given the considerable organisational efforts needed to access recoverable slack. Given this challenge, if "other operating items" were cut the savings could be used to invest in other growth focused initiatives. Recoverable slack would also have a positive influence on firm risk if more is spent on a sales force to accelerate firm growth. In contrast, it would have a negative

influence on firm risk if the current levels remained stable or declined and firm growth remained constant.

One sees this result in the impact recoverable slack has on the various industries under study. In the business services industry for example, recoverable slack has a positive influence on risk for both EMNEs and MNEs, most likely due to the strong need to deploy as many sales resources as possible to drive growth. However in manufacturing recoverable slack has a negative influence on risk-taking for both EMNEs and MNEs. This industry notoriously tries to be as lean as possible, with costs such as those under "other operating items" closely scrutinised. In the mining industry, recoverable slack has a negative influence on risk for EMNEs but a positive one for MNEs. This may be due to the fact that mining in emerging markets is generally at the mercy of commodity price fluctuations and therefore the only variable that can be controlled is operating costs. Therefore "other operating items" is likely to be as low as possible. In developed markets however, the mining industry often enjoys the benefit of downstream beneficiation where more of the final value can be captured and cost is not as extreme an issue.

6.4.3. Past firm performance

The research results agreed with Bromiley's (1991) findings that poor past firm performance had a positive effect on risk-taking as firms tried to catch up to their peers. Likewise, good past performance had a negative effect on risk-taking as firms desired to maintain the status quo which had led to their higher

performance levels. Both emerging and developed market firms continue to mimic this negative performance-risk relationship in all cases except for emerging market manufacturing and developed market mining industries. Manufacturing EMNEs, due to their newness in the global arena, may use retained earnings from high past performance to invest in extra capacity or new geographic locations, resulting in a less stable income stream the next year. Mining MNEs, in contrast, due to their longevity likely have excess cash reserves that shareholders expect them to invest in productive ventures (Hendersen & Benner, 2000), again resulting in less stable income streams. In addition, mining is subject to commodity price fluctuations which may distort their actual intention to take on additional risk or not.

6.5. Discussion of results conclusion

In conclusion, after analysing the results of the research hypotheses, four important themes emerged. Emerging market environments may not be as important to firm risk-taking as originally hypothesised. Firms from such challenging environments do not take on statistically higher levels of risk (as reflected in earnings volatility) and the differences between emerging market and developed market risk drivers may be a reflection of the differences in their stages of development rather than the differences in their home country environments. However a case can be made that given the inherently challenging business environments within emerging markets, business managers learn to manage risk more effectively, which may partially explain their progressively higher performance levels at increasing levels of risk.

Next, while the majority of firms, regardless of home country origin gravitate towards lower levels of risk, the best performing firms take on modest levels of risk. Firms in high risk categories perform worse than those in medium risk categories, supporting Bowman's Paradox of a negative risk-performance relationship, however this is contradicted in the low risk portfolio category which also underperforms the medium risk portfolio for both developed and emerging market firms. Next, EMNE risk drivers vary consistently from MNE risk drivers in four areas; performance expectation, firm age, firm independence and available slack. Interestingly, EMNEs' risk drivers follow identical results to Bromiley's original study done twenty years ago on developed market industrial firms within the USA, while developed market firms no longer respond the same way. Finally, the strongest drivers for risk-taking regardless of industry or home country origin are the degree of internationalisation, recoverable slack and past firm performance, although these variables have different effects between EMNEs and MNEs and between industries.

7. Conclusion

This research set out to answer the question of whether greater levels of risk, generally thought to be detrimental to business performance in emerging markets, is actually a benefit and an important source of competitive advantage for EMNEs in the global arena. This theory has been supported with the results of two hypotheses. First, hypothesis one tested whether the challenging business environment in emerging markets lead to greater average risk-taking by EMNEs than MNEs from developed market and found that no, EMNEs and MNEs took statistically equal levels of risk despite their very different home country environments. This means that EMNEs are able to stabilise their business performance to primarily medium and low risk portfolio categories, despite the volatility in their environments, and statistically match the risk spread of those from more stable developed markets. Second, when testing hypothesis four to understand whether firms from emerging markets demonstrated higher levels of performance than firms from developed markets at equal levels of risk, the study found that yes, EMNEs perform progressively better than developed market firms as risk levels increase, although these findings were only statistically significant at medium risk levels.

If EMNEs are able to stabilise their business performance to match that of developed market firms in less volatile environments and if they perform progressively better as risk levels increase, it is likely that business managers from such firms are more comfortable with and skilled at managing risk than their developed market peers. Therefore, emerging markets may be important

training grounds for business managers to learn how to manage risk well and in at least this sense, greater levels of environmental risk may actually benefit emerging market firm performance and even become a source of hard to imitate competitive advantage.

In hypothesis two the paper set out to answer whether the factors that have the greatest influence on the level of risk-taking are different for emerging markets firms than for firms from developed markets, and found that there are significant differences in the intensity and signs of risk drivers between EMNEs and MNEs. Specifically in every EMNE-MNE comparison, expectation, firm age, firm independence and available slack had contrasting influences. Interestingly, EMNE risk drivers were identical to those documented by Bromiley (1991) twenty years ago, yet developed market firms no longer respond the same way. This leads to an alternative explanation that perhaps differences between EMNE and MNE firms may at least be partially attributed to an earlier stage of development for EMNEs rather than an emerging market influence. The strongest drivers of firm risk-taking in the analysis were internationalisation, recoverable slack and past performance.

Finally, hypothesis three investigated whether the factors associated with risk-taking impacted performance differently when coming from emerging market firms in comparison to developed market firms, and found some evidence to support Bowman's negative risk-performance theory. Firms that take on greater levels of risk perform worse than firms that take on medium levels of risk. However, firms that take on low levels of risk also underperform those that take

on medium levels of risk. Risk-taking factors' influence on performance appears to have industry, country and emerging market effects.

7.1. Practical research considerations

Most academic work retrospectively finds explanations for observed patterns in which to build business theory. International business managers however must look forward, scrutinising their environment for signs of what the future may hold so that they can take steps now to proactively prepare their businesses. For this work to be relevant it needs to marry past academic observational analysis with tangible, contemporary business insights that can aid managers to improve discernment in their decision making. This next section hopes to do this by answering why research on emerging market risk is valuable in a practical business sense and gives suggestions for future research.

It is exciting to find unique characteristics in emerging market firms that developed market firms are without. These factors give credence to the theory that EMNEs are made up in fundamentally different ways from their developed market peers and as a result are changing the way business is played wherever they compete. But in reality, emerging market firms are most likely a combination of some new characteristics based on the very different environments they are born from, but also are simply at an earlier stage of the same development path that their developed market peers went through many years ago (Ramamurti, 2009). This last point was illustrated when the analysis found that EMNEs follow identical risk factor patterns to those of American

industrial firms twenty years ago, but that developed MNEs' risk factor influences have since changed. Therefore, the stage of multinational development may be a stronger predictor of risk factor influence than home country environment.

Ramamurti (2009) described three stages of multinational development from the primarily domestic player to the mature multinational. In stage one, where most multinationals from emerging markets are today, core capabilities are strongly tied to home country environments, they are without sophisticated technology or international brands, they have few foreign subsidiaries and their immediate focus in on market opportunities in their home and similar environments. In stage two, firms progress to developing new competencies by virtue of their international footprint, have more balanced foreign production and exports, and have growing international presence including fledgling international brands. Finally in stage three, home country of origin has little influence and firms derive strong traditional FSAs such as global brands and cutting edge technology. This study compared the top performing firms in emerging markets which were primarily in stages one and two, with developed market firms primarily in stage three.

With this knowledge, business leaders can recognise the cyclical pattern emerging market multinationals are on to better predict what the future will hold. For example, EMNEs are generally known to not have strong branding competencies, but given their developmental stage, one cannot rest on this assumption. It is only a matter of time before EMNEs from China, India, South

Africa and the like become regular household names the world over as some have started to do already. Most western brands have taken decades of investment and planning to reach the global consciousness they have today (Ramamurti, 2009).

That said, there are certain unique characteristics that are particular to emerging market firms. This study gives evidence for the theory that business managers from emerging markets whose firms survive despite the business complexities of operating in these environments, are better skilled at managing risk. Managing risk in this context may equate to interpreting environmental signals accurately and responding appropriately with flexibility and speed similar to the Innscor and Cosira EMNE cases. This can also be seen in the research results that EMNEs perform progressively better than MNEs at increasing levels of risk and that contrary to hypothesis one, EMNEs operate at the same risk levels as their developed market peers despite the considerable risk inherent in their home country environment. This ability, if true, is an important FSA specific to emerging market firms and a partial component in understanding their competitiveness against MNEs in the global market.

If the ability to manage risk is a unique core competency of business managers in thriving emerging market firms, developed market firms may find it prudent to hire such managers in strategic roles to better compete in emerging markets and/or against emerging market firms in their own markets. These managers are likely to interpret the business environment in somewhat different ways and have a different propensity and strategy for risk-taking based on what has

worked for them in the past. A similar argument justifies an emerging market entry strategy utilising a joint venture partnership or acquisition to take advantage of experienced emerging market managers rather than going it alone with a greenfield investment.

Other practical insights from the research findings relate to joint venture or acquisition targets developed market firms have in emerging markets. Western ideology prefers efficient firms with minimal slack levels coupled with high performance levels. However, this firm design may not be best in emerging markets. Emerging market firms, especially in capital intensive industries like mining and manufacturing, need a financial buffer in the form of unabsorbed slack (potential slack) to guard against unexpected challenges likely to occur over time (Tan & Peng, 2003). Without this buffer they are far more vulnerable to the volatility of their environment. This may be why they take less risk the more slack they have built up. Therefore when conducting due diligence on foreign acquisition targets or joint venture partnerships, firms should consider both the amount of absorbed and unabsorbed slack in the business under investigation, along with their other regular due diligence factors.

7.2. Future research recommendations

It seems in research when one question is answered, many new questions surface. While the standard deviation (or variance) of earnings (ROS, ROE, ROCE and ROA) is commonly used in risk performance studies as a measurement proxy for risk given its reflection of earnings volatility (Nickel &

Rodriguez, 2002), this measure only captures one dimension of company risk-taking and may be more suited for measuring the risk of investing in one company over another. For example it does not quantify the number of risks a company takes, nor the size, direction, type or purpose of company risk-taking. A more qualitative approach specifically focused on the details underlying company risk could add richness to these results.

Additionally, this study focused specifically on the risk-performance relationship, and like many studies before it, did not include a measurement for risk management. However risk and risk management are closely interlinked, especially in researching dynamic competitive advantage. Risk management was inferred given the hypothesis results, however similar studies could be improved by adding a further risk management dimension.

This study looked at whether emerging market risk was a competitive advantage to those firms that survived the inherent volatility in their home environments, with the underlying assumption that such risk, once conquered, had made them stronger global competitors. A more balanced approach however would also include firms that had not survived to understand the extent of both the benefits and detriments of emerging market risk.

Future studies could also be improved by classifying emerging market (and developed market) firms into their stage of internationalisation development. Often what might look like home country effects might simply be due to earlier stages of multinational development (Ramamurti, 2009).

Another interesting study could test whether risks taken to specifically build core competencies leads to greater firm performance. Hamel and Prahalad (1989), Andersen (2009) and Lee and Slater (2007) all argue that one of the primary keys to EMNE success in the global market is their tendency to set themselves ambitious goals and then take risks to find innovative ways to build the capabilities they need to reach them. However this may be challenging to measure as traditional measurements such as a firm's R&D spend do not capture the capacity building in areas such as new equipment, strategic acquisitions, land or human resources.

7.3. Postscript

London and Hart (2004) stressed the importance of research that endeavored to understand the specific determinants of the international success and failure of firms. EMNEs have introduced new ways of conducting business often catching confident developed market multinationals off guard in the process. There is no doubt the global economic landscape is changing and EMNEs are a major force of this change. Hopefully this study gave insight into one important determinant, propensity towards risk-taking, in the emerging market toolkit.

> *"if risk as a variable or area of study critical to understanding strategic management is ignored simply because it is too complex to be easily understood, the field of strategic management may be left floundering in its attempt to understand, predict, and influence firm performance without an important concept for its use."* ~Baird & Thomas, 1985, p.241.

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Appendices

Appendix one: Acronym and formula definitions

Acronyms

EMNE:	Emerging market multinational enterprise
EPS:	Earnings per share
FSAs:	Firm specific sources of competitive advantage
MNE:	Multinational enterprise from a developed market (for paper purposes)
RME:	Risk Management Effectiveness ((sd) net sales/ (sd) ROA)
ROA:	Return on assets
ROE:	Return on equity
ROS:	Return on sales

Formulas

Current ratio = current assets/current liabilities

Debt-to-equity ratio = total debt/total equity

EPS = net income/ number of shares

Interest coverage ratio = EBIT/Interest expense

ROA = net income/assets

ROE = net income/equity

ROS = net income/sales also known as Profit Margin

Appendix two: SIC industry breakdown

RESOURCES			
10 Metal mining	12 Coal mining	13 Oil and gas extraction	14 Mining and quarrying of non-metallic minerals, except fuels
101. Iron ores 102. Copper ores 103. Lead and zinc ores 104. Gold and silver ores 105. Ferroalloy ores, except vanadium 108. Metal mining services 109. Miscellaneous metal ores	122. Bituminous coal and lignite mining 123. Anthracite mining 124. Coal mining services	131. Crude petroleum and natural gas 132. Natural gas liquids 138. Oil and gas field services	141. Dimension stone 142. Crushed and broken stone, including riprap 144. Sand and gravel 145. Clay, ceramic and refractory minerals 147. Chemical and fertilizer mineral mining 148. Nonmettalic minerals services, except fuels 149. Miscellaneous nonmetallic minerals, except fuels
MANUFACTURING			
33 Primary metal industries	34 Fabricated metal products, except machinery and transport equipment	35 Industrial and commercial machinery and computer equipment	36 Electronic and other electrical equipment and components, except computer equipment
331. Steel works, blast furnaces and rolling and finishing 332. Iron and steel foundries 333. Primary	341. Metal cans and shipping containers 342. Cutlery, hand tools and general hardware 343. Heating	351. Engines and turbines 352. Farm and garden machinery and equipment 353. Construction	361. Electric transmission and distribution equipment 362. Electrical industrial apparatus 363. Household

smelting and refining of nonferrous metals 334. Secondary smelting and refining of nonferrous metals 335. Rolling, drawing and extruding of nonferrous metals 336. Nonferrous foundries (castings) 339. Miscellaneous primary metal products	equipment, except electric and warm air, and plumbing fixtures 344. Fabricated structural metal products 345. Screw machine products, and bolts, nuts, screws, rivets and washers 346. Metal forgings and stampings 347. Coating, engraving and allied services 348. Ordnance and accessories, except vehicles and guided missiles 349. Miscellaneous fabricated metal products	, mining and materials handling machinery and equipment 354. Metalworking machinery and equipment 355. Special industry machinery, except metalworking machinery 356. General industrial machinery and equipment 357. Computer and office equipment 358. Refrigeration and service industry machinery 359. Miscellaneous industrial and commercial machinery and equipment	appliances 364. Electric lighting and wiring equipment 365. Household audio and video equipment, and audio recordings 366. Communications equipment 367. Electronic components and accessories 369. Miscellaneous electrical machinery, equipment and supplies
SERVICES			
73 Business services	n/a	n/a	n/a

Appenidx three: Determinant of risk-taking by economy in each industry

	BUSINESS SERVICES			
	Emerging		**Developed**	
Constant	-7.92		2.48	
Performance	-3.89	*	-0.26	
Expectation	1.23	**	-0.07	
Aspiration	0.41		0.07	
Slack available	0.13		-0.01	
Slack recoverable	1.42		6.26	**
Slack potential	0.00		0.00	
Firm age	-0.14	*	0.03	**
Independence	0.36		-0.04	
International	-13.71	**	n/a	
Data fit				
Used	sd ROS		sd ROS	
Best predictor risk	sd ROS		sd ROE	
R-squared	0.52		0.24	
Adjusted R-square	0.36		0.16	
p-value	0.00		0.00	
Significance codes: <.01 '**' <.05 '*'				
Integrity tests				
Jarque Bera Normality test	0.00		0.00	
Breusch-Pagen Homoschedacity test	0.63		0.17	
Phillips -Perron Unit Root test	0.01		0.01	

	MANUFACTURING			
	Emerging		**Developed**	
Constant	3.98		6.44	**
Performance	0.91		-1.86	**
Expectation	-0.55	**	-0.13	
Aspiration	0.61	**	0.41	**
Slack available	-0.54		0.36	
Slack recoverable	-2.06		-7.4 66	**
Slack potential 1	-0.02		0.04	**
Firm age	0.00		0.00	
Independence	-0.02		0.12	
International	-2.32		n/a	
Data fit				
Used	sd ROS		sd ROS	

Best predictor risk	sd ROS		sd ROE
R-squared	0.27		0.34
Adjusted R-square	0.15		0.26
p-value	0.01		0.00

Significance codes: <.01 '**' <.05 '*'

Integrity tests

Jarque Bera Normality test	0.00	**	0.00	**
Breusch-Pagen Homoschedacity test	0.44		0.11	
Phillips -Perron Unit Root test	0.01	**	0.01	**

MINING

	Emerging		**Developed**	
Constant	18.21	**	4.91	
Performance	-4.70	**	9.72	*
Expectation	0.02		-0.33	**
Aspiration	0.28	**	-0.48	**
Slack available	-0.74		1.62	
Slack recoverable	-5.32		4.12	
Slack potential	-0.10	**	-0.07	*
Firm age	-0.07		0.03	
Independence	-0.01		0.38	
International	4.83	*	n/a	

Data fit

Used	sd ROS		sd ROS
Best predictor risk	sd ROS		sd ROE
R-squared	0.86		0.54
Adjusted R-square	0.79		0.50
p-value	0.00		0.00

Significance codes: <.01 '**' <.05 '*'

Integrity tests

Jarque Bera Normality test	0.51		0.04	*
Breusch-Pagen Homoschedacity test	0.12		0.69	
Phillips -Perron Unit Root test	0.01	**	0.08	

Appenidx four: Risk-taking drivers of performance in each industry

	BUSINESS SERVICES			
	Emerging		**Developed**	
Constant	-26.163	**	6.307	**
Expectation	0.617	**		
Aspiration	-0.392	**		
Slack available	1.929	**		
Slack recoverable	1.929	**		
Slack potential 1				
Slack potential 2				
Firm age	0.393	**		
Independence	0.142	*	-0.054	**
International	-0.528			
Risk EPS	0.750	**	-0.084	**
Risk (t+1)	-1.376	**	0.380	**
Data fit				
R-squared	0.803		0.506	
Adjusted R-square	0.754		0.476	
p-value	0.000	**	0.000	**
Significance codes: <.01 '**' <.05 '*'				
Integrity tests				
Jarque Bera Normality test	0.247		0.000	**
Breusch-Pagen Homoschedacity test	0.000	**	0.000	**
Phillips -Perron Unit Root test	0.01	**	0.01	**

	MANUFACTURING			
	Emerging		**Developed**	
Constant	16.576	**	21.257	**
Expectation	-0.835	**		**
Aspiration	-0.120	**		**
Slack available			-2.225	**
Slack recoverable	10.023	*		
Slack potential 1			-0.037	*
Slack potential 2	-0.080		-0.149	**
Firm age			-0.015	
Independence				
International				
Risk ROA	-515.549	*		
Risk ROS			1.168	**
Risk Equity	-15.949	**	-11.946	**

Risk (t+1)	516.029	*		
Data fit				
Used	ROS		ROS	
Best predictor risk	ROE		ROS	
R-squared	0.314		0.551	
Adjusted R-square	0.244		0.514	
p-value	0.000	**	0.000	**
Significance codes: <.01 '**' <.05 '*'				
Integrity tests				
Jarque Bera Normality test	0.000	**	0.000	**
Breusch-Pagen Homoschedacity test	0.000	**	0.004	**
Phillips -Perron Unit Root test	0.01	**	0.01	**

MINING

	Emerging		**Developed**	
Constant	-0.939		130.362	**
Expectation	1.931	**		**
Aspiration			-2.609	*
Slack available				
Slack recoverable			53.619	*
Slack potential 1	-0.356	**		
Slack potential 2	0.594	**		
Firm age			-0.544	**
Independence	-1.215	*	-1.592	
International	-22.286	**		
Risk ROA	-1.479	*	-2256.912	**
Risk EPS			0.945	**
Risk (t+1)			2270.167	**
Data fit				
Used	ROS		ROS	
Best predictor risk	ROS		ROS	
R-squared	0.521		0.866	
Adjusted R-square	0.423		0.810	
p-value	0.000	**	0.000	**
Significance codes: <.01 '**' <.05 '*'				
Integrity tests				
Jarque Bera Normality test	0.013	*	0.006	**
Breusch-Pagen Homoschedacity test	0.1818		0.067	**
Phillips -Perron Unit Root test	0.01	**	0.01	**

Appendix five: Determinant of risk-taking by country in each industry

Business Services

	Emerging markets			Developed markets		
	India	South Africa	Malay.	Germ.	UK	USA
Performance ROA	-			-	+	-
Performance ROS	+		+	+	-	+
Expectation ROE	+			-	+	-
Expectation ROA	-			-	-	-
Expectation ROS	+	+	-	+	-	+
Aspiration ROE	+	-	+	+	-	+
Aspiration ROA	-			+	-	+
Aspiration ROS	+		-	-	+	-
Slack available	+	-	+	+	+	-
Slack recoverable	+	-	-	+	+	+
Slack potential 1	-	+	-	-	-	-
Slack potential 2	-			-	-	+
Firm age	-			+	+	
Independence	-			+	+	
International	+					
Used	sd ROS	sd ROS	sd ROS	sd ROS	sd ROS	sd ROS
R-squared	0.3995	0.9974	0.3028	0.322	0.5236	0.4837
Adjusted R-square	0.1289	0.9909	-0.1852	0.1495	0.4346	0.3162
p-value	0.167	0.000	.007	.005	0.000	.006
	at least 10% confidence					
Jarque Bera Normality test	.000	0.526	0.388	.000	.000	.000
Breusch-Pagen Homoschedacity test	.620	.807	0.874	0.377	.014	.309
Phillips -Perron Unit Root test*	0.0177	0.520	0.0268	0.01	0.01	0.01

*p value smaler than printed p-value

Manufacturing

	Emerging markets			Developed markets		
	India	South Africa	Malay.	Germ.	UK	USA
Performance ROA	-		+	-	-	-
Performance ROS	-	-	-	+	+	+
Expectation ROE	+		+	+	-	-
Expectation ROA	+		+	+	+	+
Expectation ROS	-	-	-	+	-	+
Aspiration ROE	+	-	-	-	+	+
Aspiration ROA	-		-	-	-	-
Aspiration ROS	+	+	+	+	+	+
Slack available	-	+	-	+	-	-
Slack recoverable	+	-	-	-	-	+
Slack potential 1	-	-	+	+	+	+
Slack potential 2	+		-	-	+	-
Firm age	-		-	+	-	
Independence	+		-	+	+	
International	+		-			
Used	sd ROS	sd ROS	sd ROS	sd ROS	sd ROS	sd ROS
R-squared	0.8193	0.9902	0.3363	0.6497	0.6704	0.4915
Adjusted R-square	0.6903	0.9804	0.09349	0.5476	0.585	0.4205
p-value	0.000	0.000	.0200	0.000	0.000	0.000

at least 10% confidence

Jarque Bera Normality test	0.215	0.373	0.000	0.000	0.564	0.097
Breusch-Pagen Homoschedacity test	.302	.275	0.7764	0.201	.244	.001
Phillips -Perron Unit Root test*	0.01	0.042	0.01	0.01	0.01	0.01

*p value smaler than printed p-value

Mining

	Emerging markets			Developed markets		
	India	South Africa	Malay.	Germ.	UK	USA
Performance ROE	+	-	-		+	+
Performance ROA	+	-			-	-
Performance ROS	+	-				
Expectation ROE	-	-		+	-	-
Expectation ROA	-	+		-	+	+
Expectation ROS	+	+	-		+	+
Aspiration ROE	-	-	+		-	+
Aspiration ROA	+	+			+	-
Aspiration ROS	-	+	+		-	+
Slack available	+	-	+		+	-
Slack recoverable	+	-	+		-	+
Slack potential 1	-	-	-		-	+
Slack potential 2	-	-			-	+
Firm age	+	-			+	
Independence	+	-			+	
International	n/a	+				
Used	ROS	ROS	ROS	sd ROS	sd ROS	sd ROS
R-squared	0.7786	0.99	0.3474	0.322	0.5236	0.4837
Adjusted R-square	0.6805	0.994	0.3067	0.1495	0.4346	0.3162
p-value	0.000	0.000	0.01	.005	0.000	.006
	at least 10% confidence					
Jarque Bera Normality test	0.109	0.207	0.704	n/a**	0.004	0.000
Breusch-Pagen Homoschedacity test	.441	.199	0.248	n/a**	.708	.213
Phillips -Perron Unit Root test*	0.097	0.022	0.778	n/a**	0.033	0.01

*p value smaler than printed p-value

**** sample size too small for relevance

Appendix six: Risk-taking drivers of performance by country in each industry

Business services

	Emerging markets			Developed markets		
	India	South Africa	Malay.	Germ.	UK	USA
Expectation ROE	+					
Expectation ROA						
Expectation ROS						
Aspiration ROE	-					
Aspiration ROA					+	
Aspiration ROS	+					
Slack available	+			-		+
Slack recoverable		-		-		+
Slack potential 1					-	
Slack potential 2	+					
Firm age	+			-		
Independence	-					
International	+					
Risk ROE				-	+	+
Risk ROS	-	+				-
Risk ROA	-			+		-
Risk Beta	+					
Risk equity						
Risk EPS					-	
Risk ROEF1	+				-	
Risk ROSF1						
Risk ROAF1						
Risk BetaF1						
Risk equityF1						
Used	ROS	ROS	ROS	ROS	ROS	ROS
R-squared	0.7786	0.9967	0.3474	0.5746	0.599	0.8913
Adjusted R-square	0.6805	0.9941	0.3067	0.5266	0.57	0.8731
p-value	0.000	0.000	0.01	0.000	0.00	0.000

					0	

at least 10% confidence

Strongest risk predictor of performance within equation

Jarque Bera Normality test	0.578	0.872	0.214	0.000	0.000	0.000
Breusch-Pagen Homoschedacity test	0.000	0.490	0.414	0.000	0.0208	0.0146
Phillips -Perron Unit Root test	0.01	0.7561	0.3137	0.01	0.01	0.01

*p value smaler than printed p-value

Manufacturing

	Emerging markets			Developed markets		
	India	South Africa	Malay.	Germ.	UK	USA
Expectation ROE	+				+	-
Expectation ROA	-		-		-	+
Expectation ROS		-	+		-	+
Aspiration ROE	-		+		-	+
Aspiration ROA			+	+	+	-
Aspiration ROS		+	-			+
Slack available	+	+	-		-	-
Slack recoverable						+
Slack potential 1	-		+	+	-	+
Slack potential 2				-		+
Firm age	-					
Independence	-		+			
International Risk ROE	+		-	-		
Risk ROS		-	-			
Risk ROA	-		-	+		
Risk Beta						+
Risk equity	-		-	-		-

Risk EPS			+			-
Risk ROEF1	-		+	+	-	
Risk ROSF1	+					
Risk ROAF1			+	-		
Risk BetaF1						
Risk equityF1						

Used	ROS	ROS	ROS	ROS	ROS	ROS
R-squared	0.8512	0.7557	0.6136	0.5872	0.6489	0.4915
Adjusted R-square	0.7564	0.658	0.4452	0.5261	0.5954	0.4205
p-value	0.000	0.004	0.000	0.000	0.000	0.000

at least 10% confidence

Jarque Bera Normality test	0.01	0.86	0.22	0.050	0.000	0.000
Breusch-Pagen Homoschedacity test	0.007	0.14	0.02	0.13	0.048	0.027
Phillips -Perron Unit Root test	0.01	0.444	0.01	0.01	0.01	0.01

*p value smaler than printed p-value

Mining

	Emerging markets			**Developed markets**		
	India	South Africa	Malay.	Germ.	UK	USA
Expectation ROE		-				
Expectation ROA		+				+
Expectation ROS	+	+			-	
Aspiration ROE		-				-
Aspiration ROA		+			-	-
Aspiration ROS	-	-				+
Slack available	-	+	-			+
Slack recoverable	+	-	-		+	

Slack potential 1	-	+	+			
Slack potential 2	+	+				-
Firm age		+			-	
Independence		+				
International		+				
Risk ROE		-			+	-
Risk ROS		+	+		+	
Risk ROA		+			-	+
Risk Beta		-				-
Risk equity		+			-	
Risk EPS		-			-	-
Risk ROEF1		+			-	
Risk ROSF1		-				
Risk ROAF1		-			+	
Risk BetaF1						
Risk equityF1						

Used	ROS	ROS	ROS	ROS	ROS	ROS
R-squared	0.89	0.3321	0.7889	1*	0.8621	0.5362
Adjusted R-square	0.8167	0.3034	0.5778	n/a	0.7768	0.3534
p-value	0.000	0.000	0.087	n/a	0.000	.006

at least 10% confidence

*not enough data

Strongest risk predictor of performance within equation

Jarque Bera Normality test	0.87	0.35	0.86	n/a	0.000	0.000
Breusch-Pagen Homoschedacity test	0.39	0.334	0.080	n/a	0.040	0.003
Phillips -Perron Unit Root test	0.043	0.01	0.42	n/a	0.01	0.01

*p value smaler than printed p-value

Appendix seven: Consistency matrix

Research Hypotheses	Literature Review	Data Collection	Analysis
Hypothesis 1: The challenging business environment in emerging markets leads to greater average risk-taking by EMNEs than MNEs from developed markets.	Khanna *et al*, 2008; Yiu *et al*, 2007; Ingram & Baum, 1997; Khanna & Palepu, 2006; Lee & Slater, 2007.	Risk = Standard deviation of ROA, ROE, & ROS	Two-proportion z-test
Hypothesis 2: The factors that have the greatest influence on the level of risk-taking are different for emerging market firms than for firms from developed markets.	Bromiley, 1991; Shoham & Fiegenbaum, 2002; Fiegenbaum & Thomas, 2004; Bowman, 1980; Aybar & Thirunavukkarasu, (2005).	Standard deviation of ROA, ROE, & ROS; ROA, ROE, ROS; industries' ROA, ROE & ROS; current ratio, other operating ítems/sales, debt to equity ratio, foreign sales/sales, BVDep Independence, country, industry type, firm age	Multivariate stepwise regression
Hypothesis 3: The factors associated with risk-taking impact performance differently when coming from emerging market firms in comparison to developed market firms.	Bromiley, 1991; Shoham & Fiegenbaum, 2002; Fiegenbaum & Thomas, 2004; Bowman, 1980; Aybar & Thirunavukkarasu, (2005).	Standard deviation of ROA, ROE, & ROS; ROA, ROE, ROS; industries' ROA, ROE & ROS; current ratio, other operating ítems/sales, debt to equity ratio, foreign sales/sales, BVDep Independence, country, industry type, firm age	Multivariate stepwise regression
Hypothesis 4: Firms from emerging markets demonstrate higher levels of performance than firms from developed countries at equal levels of risk.	Bowman, 1980; Bromiley 1991; Shapiro, 1995; Yiu *et al* (2007)	Risk = standard deviation of ROA, ROE, & ROS; Performance = ROA, ROE, & ROS	Nonparametric Mann-Whitney test

Appendix eight: List of firms used in analysis

Business Services	Country
3I INFOTECH LTD.	India
CMC LIMITED	India
CRANES SOFTWARE INTERNATIONAL LIMITED	India
CREDIT RATING INFORMATION SERVICES OF INDIA LTD - CRISIL	India
GEODESIC LIMITED	India
GEOMETRIC LIMITED	India
HCL TECHNOLOGIES LIMITED	India
HEXAWARE TECHNOLOGIES LTD	India
HONEYWELL AUTOMATION INDIA LIMITED	India
INFOSYS TECHNOLOGIES LTD.	India
INFOTECH ENTERPRISES LIMITED	India
KPIT CUMMINS INFOSYSTEMS LIMITED	India
MASCON GLOBAL LTD.	India
MASTEK LIMITED	India
MINDTREE LIMITED	India
MPHASIS LIMITED	India
NIIT LIMITED	India
NIIT TECHNOLOGIES LIMITED	India
ORACLE FINANCIAL SERVICES SOFTWARE LIMITED	India
PATNI COMPUTER SYSTEMS LIMITED	India
POLARIS SOFTWARE LAB LIMITED	India
ROLTA INDIA LIMITED	India
SIFY TECHNOLOGIES LIMITED	India
SONATA SOFTWARE LTD	India
SUBEX LIMITED	India
TATA CONSULTANCY SERVICES LIMITED	India
UTV SOFTWARE COMMUNICATIONS LIMITED	India
WIPRO LIMITED	India
WNS (HOLDINGS) LIMITED	India
ZENSAR TECHNOLOGIES LIMITED	India
ADAPTIT HOLDINGS LIMITED	South Africa
ADCORP HOLDINGS LIMITED	South Africa
ADVTECH LIMITED	South Africa
ALLIANCE MINING CORPORATION LIMITED	South Africa
COMPU-CLEARING OUTSOURCING LIMITED	South Africa
CONTROL INSTRUMENTS GROUP LTD	South Africa
CONVERGENET HOLDINGS LIMITED	South Africa
DATACENTRIX HOLDINGS LIMITED	South Africa
DATATEC LIMITED	South Africa
DIGICORE HOLDINGS LIMITED	South Africa

DORBYL LIMITED	South Africa
DTH DYNAMIC TECHNOLOGY HOLDINGS LIMITED	South Africa
EOH HOLDINGS LIMITED	South Africa
FARITEC HOLDINGS LIMITED	South Africa
ISA HOLDINGS LIMITED	South Africa
METROFILE HOLDINGS LIMITED	South Africa
ONELOGIX GROUP LIMITED	South Africa
PARACON HOLDINGS LIMITED	South Africa
PSV HOLDINGS LIMITED	South Africa
SECUREDATA HOLDINGS LIMITED	South Africa
SILVERBRIDGE HOLDINGS LIMITED	South Africa
SIMEKA BUSINESS GROUP LIMITED	South Africa
SPESCOM LIMITED	South Africa
SQUARE ONE SOLUTIONS GROUP LIMITED	South Africa
UCS GROUP LIMITED	South Africa
WORKFORCE HOLDINGS LIMITED	South Africa
ZAPTRONIX LIMITED	South Africa
ARIANTEC GLOBAL BERHAD	Malaysia
AWC BERHAD	Malaysia
CBS TECHNOLOGY BERHAD	Malaysia
CUSCAPI BERHAD	Malaysia
DATAPREP HOLDINGS BERHAD	Malaysia
DIGISTAR CORPORATION BERHAD	Malaysia
EMAS KIARA INDUSTRIES BERHAD	Malaysia
EXTOL MSC BERHAD	Malaysia
GHL SYSTEMS BERHAD	Malaysia
GREEN OCEAN CORPORATION BERHAD	Malaysia
Hypothesis 3	Malaysia
I-POWER BERHAD	Malaysia
IRIS CORPORATION BERHAD	Malaysia
JOBSTREET CORPORATION BERHAD	Malaysia
KANNALTEC BERHAD	Malaysia
MCM TECHNOLOGIES BERHAD	Malaysia
MESINIAGA BERHAD	Malaysia
MICROLINK SOLUTIONS BERHAD	Malaysia
NEXTNATION COMMUNICATION BERHAD	Malaysia
NOVA MSC BERHAD	Malaysia
OPENSYS (M) BERHAD	Malaysia
PATIMAS COMPUTERS BHD	Malaysia
PERDUREN (M) BERHAD	Malaysia
PUC FOUNDER (MSC) BERHAD	Malaysia
REXIT BERHAD	Malaysia
SENI JAYA CORPORATION BHD	Malaysia
SYMPHONY HOUSE BERHAD	Malaysia
TECHNODEX BERHAD	Malaysia
THETA EDGE BERHAD	Malaysia

WILLOWGLEN MSC BERHAD	Malaysia
YTL E-SOLUTIONS BERHAD	Malaysia
ADESSO AG	Germany
ADLINK INTERNET MEDIA AG	Germany
ALLGEIER HOLDING AG	Germany
AMADEUS FIRE AG	Germany
ASKNET AG	Germany
AUGUSTA TECHNOLOGIE AG	Germany
BECHTLE AG	Germany
BETA SYSTEMS SOFTWARE AG	Germany
CANCOM IT SYSTEME AG	Germany
CENIT AG	Germany
CEWE COLOR HOLDING AG	Germany
COMPUGROUP MEDICAL AG	Germany
FRANCOTYP-POSTALIA HOLDING AG	Germany
GFT TECHNOLOGIES AG	Germany
HANSA GROUP AG	Germany
IDS SCHEER AG	Germany
INTEGRALIS AG	Germany
ITELLIGENCE AG	Germany
JAXX AG	Germany
MENSCH UND MASCHINE SOFTWARE SE	Germany
NEMETSCHEK AG	Germany
PC-WARE INFORMATION TECHNOLOGIES AG	Germany
PSI AG FUER PRODUKTE UND SYSTEME DER INFORMATIONSTECHNOLOGIE	Germany
REALTECH AG	Germany
SAP AG	Germany
SECUNET SECURITY NETWORKS AG	Germany
SEVEN PRINCIPLES AG	Germany
SOFTWARE AG	Germany
TDS INFORMATIONSTECHNOLOGIE AG	Germany
TOMORROW FOCUS AG	Germany
UNITED INTERNET AG	Germany
WINCOR NIXDORF AG	Germany
WIRE CARD AG	Germany
AEGIS GROUP PLC	UK
AGGREKO PLC	UK
AMDOCS LIMITED	UK
ASHTEAD GROUP PUBLIC LIMITED COMPANY	UK
AUTONOMY CORPORATION PLC	UK
BABCOCK INTERNATIONAL GROUP PLC	UK
BRAMMER PLC	UK
CHIME COMMUNICATIONS PLC	UK
COMPUTACENTER PLC	UK
CONNAUGHT PLC	UK

DIMENSION DATA HOLDINGS PLC	UK
FIDESSA GROUP PLC	UK
G4S PLC	UK
HARVEY NASH GROUP PLC	UK
HAYS PLC	UK
HOMESERVE PLC	UK
JARVIS PLC	UK
LOGICA PLC	UK
MATCHTECH GROUP PLC	UK
MEARS GROUP PLC	UK
MICHAEL PAGE INTERNATIONAL PLC	UK
MICRO FOCUS INTERNATIONAL PLC	UK
MISYS PLC	UK
MITIE GROUP PLC	UK
MORSON GROUP PLC	UK
QINETIQ GROUP PLC	UK
RENTOKIL INITIAL PLC	UK
RM PLC	UK
ROBERT WALTERS PLC	UK
SPEEDY HIRE PLC	UK
STHREE PLC	UK
THE SAGE GROUP PLC.	UK
WPP PLC	UK
XCHANGING PLC	UK
YELL GROUP PLC	UK
ABM INDUSTRIES INC	USA
ACTIVISION BLIZZARD, INC.	USA
ADOBE SYSTEMS INC	USA
AECOM TECHNOLOGY CORPORATION	USA
BRINK'S COMPANY (THE)	USA
CA, INC.	USA
CACI INTERNATIONAL INC	USA
CLEAR CHANNEL OUTDOOR HOLDINGS, INC.	USA
COGNIZANT TECHNOLOGY SOLUTIONS CORP	USA
COMPUTER SCIENCES CORP	USA
CONVERGYS CORP	USA
DIEBOLD INC	USA
ELECTRONIC ARTS INC	USA
FISERV INC	USA
GOOGLE INC.	USA
HALF ROBERT INTERNATIONAL INC	USA
INTERNATIONAL BUSINESS MACHINES CORP - IBM	USA
INTERPUBLIC GROUP OF COMPANIES INC	USA
INTUIT INC	USA
KELLY SERVICES INC	USA
MANPOWER INC	USA

MICROSOFT CORP	USA
OMNICOM GROUP INC	USA
ORACLE CORP	USA
RENT A CENTER INC	USA
SYMANTEC CORP	USA
UNISYS CORP	USA
UNITED RENTALS INC	USA
WESTERN UNION CO. (THE)	USA
YAHOO INC	USA
Mining	**Country**
ABAN OFFSHORE LIMITED	India
ATLANTA LTD.	India
B.L. KASHYAP & SONS LTD.	India
BHARAT PETROLEUM CORPORATION LIMITED	India
BINANI INDUSTRIES LIMITED	India
DOLPHIN OFFSHORE ENTERPRISES INDIA LIMITED	India
ESSAR OIL LIMITED	India
FERRO ALLOYS CORPORATION LIMITED	India
FERTILISERS & CHEMICALS TRAVANCORE LIMITED	India
GUJARAT AMBUJA EXPORTS LIMITED	India
GUJARAT MINERAL DEVELOPMENT CORPORATION LTD	India
HINDUSTAN PETROLEUM CORPORATION LIMITED	India
JINDAL DRILLING & INDUSTRIES LTD	India
K.S. OILS LIMITED	India
LIBERTY PHOSPHATE LTD.	India
NEYVELI LIGNITE CORPORATION LIMITED	India
OIL & NATURAL GAS CORPORATION LIMITED	India
PARKER AGROCHEM EXPORTS LTD.	India
RAM RATNA WIRES LTD	India
ROHIT FERRO-TECH LIMITED	India
SABERO ORGANICS GUJARAT LTD.	India
SANDUR MANGANESE & IRON ORES LTD.	India
SEAMEC LIMITED	India
SESA GOA LTD	India
SHIV-VANI OIL & GAS EXPLORATION SERVICES LTD.	India
VIDEOCON INDUSTRIES LIMITED	India
VIKASH METAL AND POWER LIMITED	India
VIPPY INDUSTRIES LIMITED	India
AFRICAN RAINBOW MINERALS LIMITED	South Africa
AFRIMAT LIMITED	South Africa
ANGLO PLATINUM LIMITED	South Africa
ANGLOGOLD ASHANTI LIMITED	South Africa
ASSORE LIMITED	South Africa
DRDGOLD LIMITED	South Africa
EXXARO RESOURCES LIMITED	South Africa
GOLD FIELDS LIMITED	South Africa

HARMONY GOLD MINING COMPANY LIMITED	South Africa
Hypothesis 3	South Africa
IMPALA PLATINUM HOLDINGS LIMITED	South Africa
MERAFE RESOURCES LIMITED	South Africa
METOREX LIMITED	South Africa
MVELAPHANDA RESOURCES LIMITED	South Africa
NORTHAM PLATINUM LIMITED	South Africa
OMNIA HOLDINGS LIMITED	South Africa
PALABORA MINING COMPANY LIMITED	South Africa
PETMIN LIMITED	South Africa
SENTULA MINING LIMITED	South Africa
SIMMER AND JACK MINES LTD	South Africa
TRANS HEX GROUP LTD	South Africa
EASTERN PACIFIC INDUSTRIAL CORPORATION BERHAD	Malaysia
ES CERAMICS TECHNOLOGY BHD	Malaysia
Hypothesis 3	Malaysia
M3NERGY BERHAD	Malaysia
MAGNA PRIMA BERHAD	Malaysia
METAL RECLAMATION BERHAD	Malaysia
MMC CORPORATION BERHAD	Malaysia
WAH SEONG CORPORATION BERHAD	Malaysia
ZELAN BERHAD	Malaysia
ALLGEMEINE GOLD UND SILBERSCHEIDEANSTALT AG	Germany
AURUBIS AG	Germany
SUEDWESTDEUTSCHE SALZWERKE AG	Germany
ANGLO PACIFIC GROUP PLC	UK
ANTOFAGASTA PLC	UK
ATH RESOURCES PLC	UK
AVNEL GOLD MINING LIMITED	UK
AVOCET MINING PLC	UK
BHP BILLITON PLC	UK
BISICHI MINING PUBLIC LIMITED COMPANY	UK
CENTRAL AFRICAN MINING & EXPLORATION COMPANY PLC	UK
EURASIAN NATURAL RESOURCES CORPORATION PLC	UK
FRESNILLO PLC	UK
GMA RESOURCES PLC	UK
HIGHLAND GOLD MINING LIMITED	UK
HOCHSCHILD MINING PLC	UK
KAZAKHGOLD GROUP LIMITED	UK
KAZAKHMYS PLC	UK
LONMIN PUBLIC LIMITED COMPANY	UK
MWANA AFRICA PLC	UK
PETROPAVLOVSK PLC	UK
RANDGOLD RESOURCES LIMITED	UK
RIO TINTO PLC	UK

UK COAL PLC	UK
VATUKOULA GOLD MINES PLC	UK
XSTRATA PLC	UK
ZIMPLATS HOLDINGS LIMITED	UK
ALLIANCE HOLDINGS GP, L.P.	USA
ALLIANCE RESOURCE PARTNERS LP	USA
ALPHA NATURAL RESOURCES, INC.	USA
AMCOL INTERNATIONAL CORPORATION	USA
ARCH COAL INC	USA
CLIFFS NATURAL RESOURCES INC.	USA
COEUR D'ALENE MINES CORP	USA
COMPASS MINERALS INTERNATIONAL, INC.	USA
CONSOL ENERGY INC	USA
FREEPORT MCMORAN COPPER & GOLD INC	USA
HALLADOR ENERGY COMPANY	USA
HECLA MINING CO	USA
INTERNATIONAL COAL GROUP, INC. - IDG	USA
JAMES RIVER COAL COMPANY	USA
L & L ENERGY, INC.	USA
MARTIN MARIETTA MATERIALS INC	USA
MASSEY ENERGY COMPANY	USA
NATIONAL COAL CORP.	USA
NATURAL RESOURCE PARTNERS L.P.	USA
NEWMONT MINING CORPORATION	USA
PATRIOT COAL CORPORATION	USA
PEABODY ENERGY CORP	USA
ROYAL GOLD INC	USA
SONGZAI INTERNATIONAL HOLDING GROUP, INC.	USA
SOUTHERN PERU COPPER CORP	USA
STILLWATER MINING CO	USA
TIMBERLINE RESOURCES CORPORATION	USA
UNITED STATES LIME & MINERALS INC	USA
VULCAN MATERIALS COMPANY	USA
WALTER ENERGY, INC.	USA
Manufacturing	**Country**
ABB LIMITED	India
ALSTOM PROJECT INDIA LIMITED	India
AMTEK AUTO LIMITED	India
BHARAT ELECTRONICS LIMITED	India
BHARAT FORGE LIMITED	India
BHUSHAN STEEL LIMITED	India
CROMPTON GREAVES LIMITED	India
CUMMINS INDIA LIMITED	India
ESCORTS LIMITED	India
EXIDE INDUSTRIES LIMITED	India
HAVELLS INDIA LIMITED	India

HINDALCO INDUSTRIES LIMITED	India
ISPAT INDUSTRIES LIMITED	India
JINDAL SAW LIMITED	India
JINDAL STEEL & POWER LIMITED	India
JSL LIMITED	India
JSW STEEL LIMITED	India
KALPATARU POWER TRANSMISSION LIMITED	India
KIRLOSKAR BROTHERS LIMITED	India
LARSEN & TOUBRO LIMITED	India
LLOYDS STEEL INDUSTRIES LTD	India
MAHARASHTRA SEAMLESS LIMITED	India
MOSER BAER (INDIA) LIMITED	India
MOTHERSON SUMI SYSTEMS LIMITED	India
MUKAND LIMITED	India
NATIONAL STEEL AND AGRO INDUSTRIES LIMITED	India
PSL LIMITED	India
RAMSARUP INDUSTRIES LTD.	India
SIEMENS LIMITED	India
STEEL AUTHORITY OF INDIA LIMITED	India
STERLITE INDUSTRIES (INDIA) LIMITED	India
STERLITE TECHNOLOGIES LIMITED	India
TATA STEEL LIMITED	India
THERMAX LIMITED	India
USHA MARTIN LIMITED	India
UTTAM GALVA STEELS LIMITED	India
VOLTAS LIMITED	India
AFRICA CELLULAR TOWERS LIMITED	South Africa
ALLIED ELECTRONICS CORPORATION LIMITED	South Africa
ALLIED TECHNOLOGIES LIMITED	South Africa
AMALGAMATED APPLIANCE HOLDINGS LIMITED	South Africa
ARCELORMITTAL SOUTH AFRICA LIMITED	South Africa
BELL EQUIPMENT LIMITED	South Africa
BSI STEEL LIMITED	South Africa
BUILDMAX LIMITED	South Africa
DELTA EMD LIMITED	South Africa
HIGHVELD STEEL AND VANADIUM CORPORATION LIMITED	South Africa
HOWDEN AFRICA HOLDINGS LIMITED	South Africa
Hypothesis 3	South Africa
INSIMBI REFRACTORY AND ALLOY SUPPLIES LIMITED	South Africa
JASCO ELECTRONICS HOLDINGS LIMITED	South Africa
KAIROS INDUSTRIAL HOLDINGS LIMITED	South Africa
MUSTEK LIMITED	South Africa
NU-WORLD HOLDINGS LIMITED	South Africa
PINNACLE TECHNOLOGY HOLDINGS LIMITED	South Africa
REUNERT LIMITED	South Africa
ALUMINIUM COMPANY OF MALAYSIA BERHAD	Malaysia

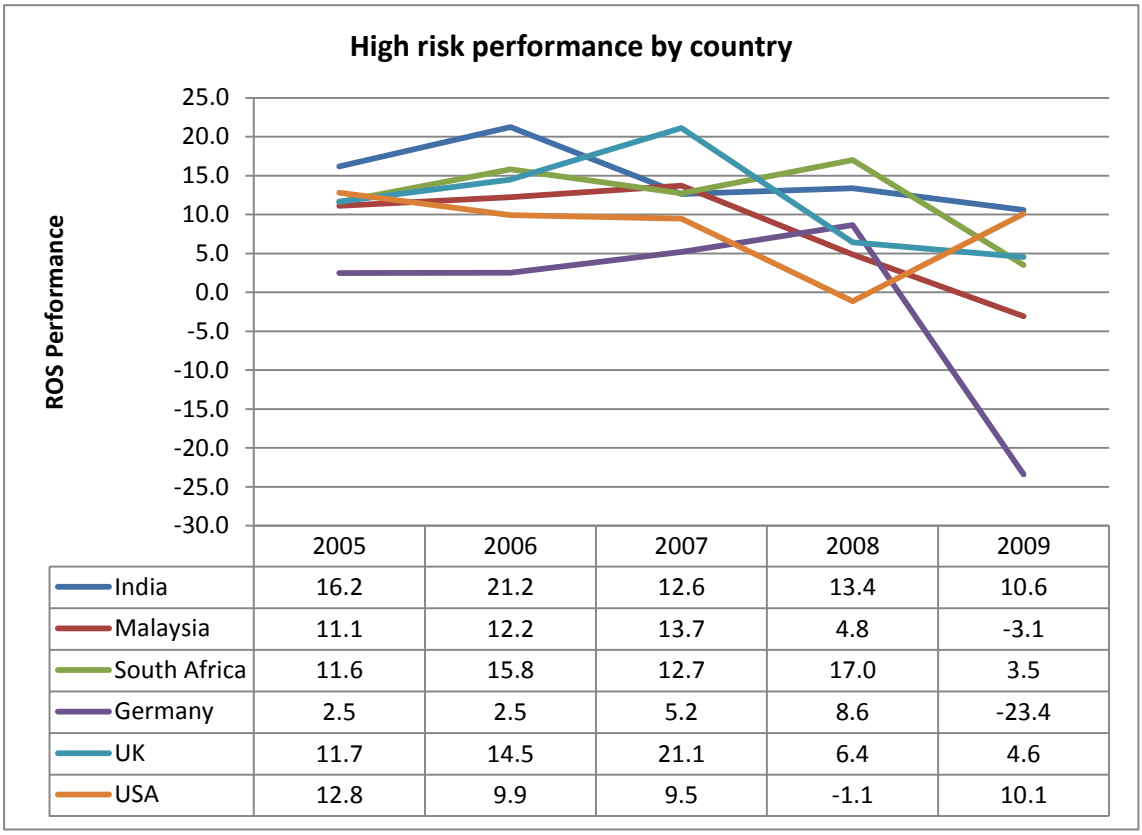
ANN JOO RESOURCES BERHAD	Malaysia
A-RANK BERHAD	Malaysia
ASTINO BERHAD	Malaysia
ATIS CORPORATION BERHAD	Malaysia
CB INDUSTRIAL PRODUCT HOLDINGS BERHAD	Malaysia
CHIN WELL HOLDINGS BERHAD	Malaysia
CHOO BEE METAL INDUSTRIES BERHAD	Malaysia
CSC STEEL HOLDINGS BERHAD	Malaysia
ENG TEKNOLOGI HOLDINGS BHD	Malaysia
FACB INDUSTRIES INCORPORATED BERHAD	Malaysia
FORMIS RESOURCES BERHAD	Malaysia
FORMOSA PROSONIC INDUSTRIES BERHAD	Malaysia
HONG LEONG INDUSTRIES BHD	Malaysia
Hypothesis 3	Malaysia
KIAN JOO CAN FACTORY BERHAD	Malaysia
KINSTEEL BERHAD	Malaysia
KNM GROUP BERHAD	Malaysia
LB ALUMINUM BERHAD	Malaysia
LEADER STEEL HOLDINGS BERHAD	Malaysia
LEADER UNIVERSAL HOLDINGS BHD	Malaysia
LION CORPORATION BERHAD	Malaysia
MALAYSIA SMELTING CORPORATION BHD	Malaysia
MALAYSIA STEEL WORKS (KL) BERHAD	Malaysia
MALAYSIAN AE MODELS HOLDINGS BERHAD	Malaysia
MALAYSIAN PACIFIC INDUSTRIES BHD	Malaysia
MELEWAR INDUSTRIAL GROUP BERHAD	Malaysia
METROD (MALAYSIA) BHD	Malaysia
MYCRON STEEL BERHAD	Malaysia
NYLEX (MALAYSIA) BERHAD	Malaysia
PANASONIC MANUFACTURING MALAYSIA BERHAD	Malaysia
PERUSAHAAN SADUR TIMAH MALAYSIA (PERSTIMA) BERHAD	Malaysia
PRESS METAL BERHAD	Malaysia
PRESTAR RESOURCES BHD	Malaysia
RAMUNIA HOLDINGS BERHAD	Malaysia
SAAG CONSOLIDATED (M) BHD	Malaysia
SOUTHERN STEEL BERHAD	Malaysia
TA WIN HOLDINGS BERHAD	Malaysia
UNISEM (M) BERHAD	Malaysia
WARISAN TC HOLDINGS BERHAD	Malaysia
YTL POWER INTERNATIONAL BERHAD	Malaysia
YUNG KONG GALVANISING INDUSTRIES BHD	Malaysia
AIXTRON AG	Germany
BAUER AKTIENGESELLSCHAFT	Germany
CENTROSOLAR GROUP AG	Germany
CONERGY AG	Germany

DEUTZ AG	Germany
DÜRR AG	Germany
EINHELL GERMANY AG	Germany
GESCO AG	Germany
GILDEMEISTER AG	Germany
HEIDELBERGER DRUCKMASCHINEN AG	Germany
INDUS HOLDING AG	Germany
INFINEON TECHNOLOGIES AG	Germany
KLOECKNER-WERKE AG	Germany
KOENIG UND BAUER AG	Germany
KONTRON AG	Germany
KRONES AG	Germany
KSB AG	Germany
KUKA AG	Germany
LEIFHEIT AG	Germany
LEONI AG	Germany
LOEWE AG	Germany
MAN SE	Germany
PHOENIX SOLAR AG	Germany
Q-CELLS SE	Germany
RATIONAL AG	Germany
RENK AG	Germany
SALZGITTER AG	Germany
SARTORIUS AG	Germany
SCHULER AG	Germany
SGL CARBON SE	Germany
SOLON SE	Germany
THYSSENKRUPP AG	Germany
WACKER NEUSON SE	Germany
WASHTEC AG	Germany
WMF WÜRTTEMBERGISCHE METALLWARENFABRIK AG	Germany
AGA RANGEMASTER GROUP PLC	UK
ALUMASC GROUP PLC (THE)	UK
ARM HOLDINGS PLC	UK
BODYCOTE PLC	UK
CHEMRING GROUP PLC	UK
CHINA SHOTO PLC	UK
CHLORIDE GROUP PUBLIC LIMITED COMPANY	UK
COOKSON GROUP PLC	UK
CSR PLC	UK
DIALOG SEMICONDUCTOR PLC	UK
DOMINO PRINTING SCIENCES PUBLIC LIMITED COMPANY	UK
E2V TECHNOLOGIES PLC	UK
GUINNESS PEAT GROUP PLC	UK
HALMA PUBLIC LIMITED COMPANY	UK
HILL & SMITH HOLDINGS PLC	UK

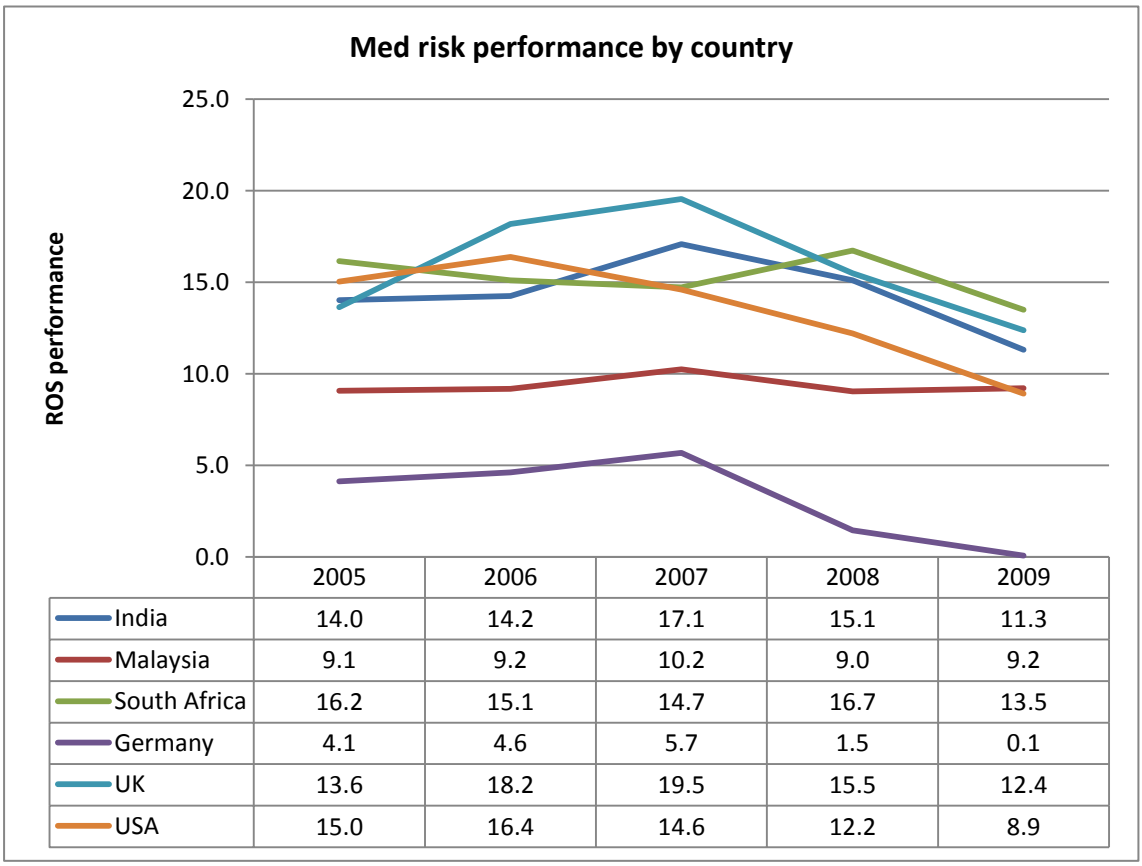
IMI PLC	UK
KOFAX PLC	UK
LAIRD PLC	UK
PACE PLC	UK
PSION PLC	UK
PV CRYSTALOX SOLAR PLC	UK
REGENERSIS PLC	UK
RENOLD PUBLIC LIMITED COMPANY	UK
REXAM PLC	UK
ROTORK P.L.C.	UK
SEVERFIELD-ROWEN PLC	UK
SPECTRIS PLC	UK
SPIRAX-SARCO ENGINEERING PLC	UK
TOMKINS PLC.	UK
TT ELECTRONICS PLC	UK
ULTRA ELECTRONICS HOLDINGS PLC	UK
VEDANTA RESOURCES PLC	UK
VISLINK PLC	UK
VOLEX GROUP P.L.C.	UK
WEIR GROUP PLC(THE)	UK
ADVANCED MICRO DEVICES INC	USA
AGCO CORP	USA
ALCOA INC	USA
ALLIANT TECHSYSTEMS INC	USA
APPLE INC.	USA
APPLIED MATERIALS INC	USA
BAKER HUGHES INC	USA
BALL CORP	USA
BROADCOM CORP	USA
CAMERON INTERNATIONAL CORPORATION	USA
CATERPILLAR INC	USA
CISCO SYSTEMS INC	USA
COMMERCIAL METALS CO	USA
CROWN HOLDINGS, INC.	USA
CUMMINS INC.	USA
DEERE & CO	USA
DELL, INC.	USA
DOVER CORP	USA
EATON CORP	USA
EMC CORP	USA
FLOWSERVE CORP	USA
FMC TECHNOLOGIES INC	USA
GENERAL CABLE CORP	USA
HARRIS CORP	USA
HEWLETT-PACKARD COMPANY	USA
ILLINOIS TOOL WORKS INC	USA

INSIGHT ENTERPRISES INC	USA
INTEL CORP	USA
ITT CORPORATION	USA
JABIL CIRCUIT INC	USA
JARDEN CORPORATION	USA
L-3 COMMUNICATIONS HOLDINGS, INC.	USA
MICRON TECHNOLOGY INC	USA
MOTOROLA INC	USA
NCR CORP	USA
NUCOR CORP	USA
PARKER HANNIFIN CORP	USA
PRECISION CASTPARTS CORP	USA
QUALCOMM INC	USA
SANMINA-SCI CORPORATION	USA
SMITH INTERNATIONAL INC	USA
SPX CORP	USA
TEXAS INSTRUMENTS INC	USA
UNITED STATES STEEL CORPORATION	USA
UNITED TECHNOLOGIES CORPORATION	USA
WESTERN DIGITAL CORP	USA
WHIRLPOOL CORP	USA

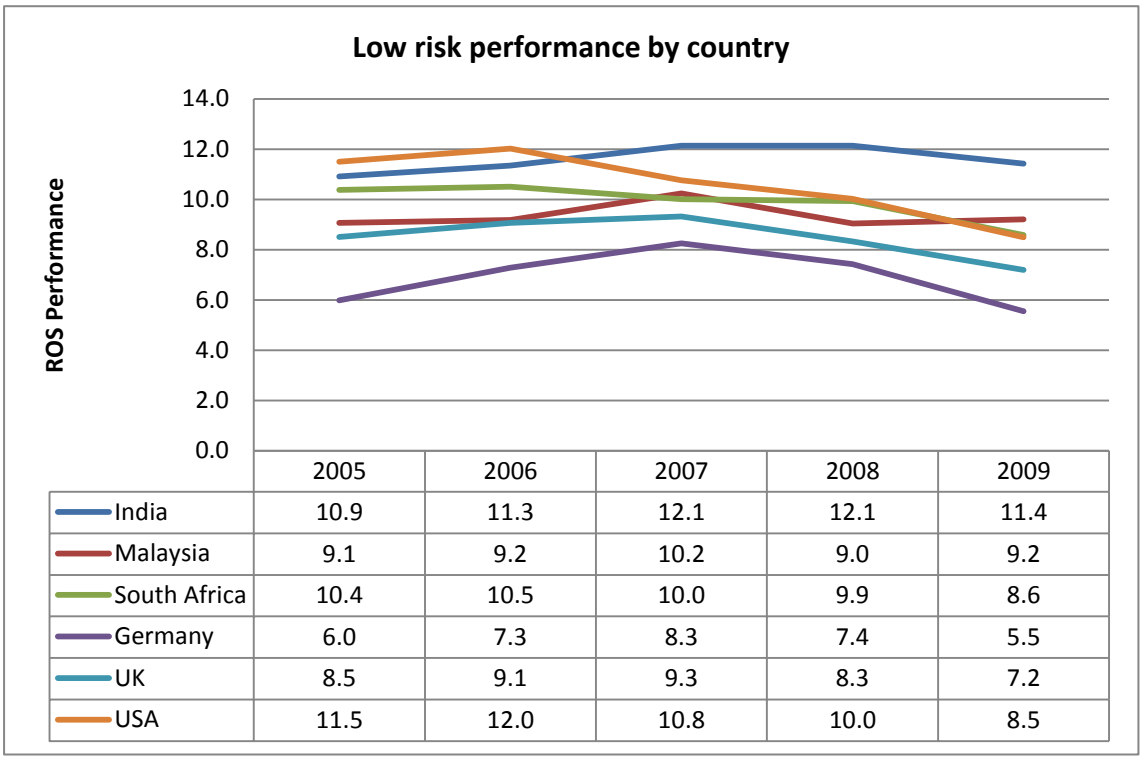
Appendix nine: Country performance by portfolio risk level



	2005	2006	2007	2008	2009
India	16.2	21.2	12.6	13.4	10.6
Malaysia	11.1	12.2	13.7	4.8	-3.1
South Africa	11.6	15.8	12.7	17.0	3.5
Germany	2.5	2.5	5.2	8.6	-23.4
UK	11.7	14.5	21.1	6.4	4.6
USA	12.8	9.9	9.5	-1.1	10.1



	2005	2006	2007	2008	2009
India	14.0	14.2	17.1	15.1	11.3
Malaysia	9.1	9.2	10.2	9.0	9.2
South Africa	16.2	15.1	14.7	16.7	13.5
Germany	4.1	4.6	5.7	1.5	0.1
UK	13.6	18.2	19.5	15.5	12.4
USA	15.0	16.4	14.6	12.2	8.9



	2005	2006	2007	2008	2009
India	10.9	11.3	12.1	12.1	11.4
Malaysia	9.1	9.2	10.2	9.0	9.2
South Africa	10.4	10.5	10.0	9.9	8.6
Germany	6.0	7.3	8.3	7.4	5.5
UK	8.5	9.1	9.3	8.3	7.2
USA	11.5	12.0	10.8	10.0	8.5