How institutional quality affects the drivers and outcomes of innovation in emerging markets

The importance of local context

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Abstract:

Emerging markets pose great business opportunities, however, more knowledge of these markets is needed to successfully capitalise on these opportunities. This study examined the innovation framework of these markets and the role of institutional quality in these processes. A firm's product/service and process innovation were thought to be influenced by six drivers and influence two performance outcomes in its own respect. These relationships were expected to be positively moderated by institutional quality. The results of the study were mostly unpredicted and could be attributed to emerging markets being a too heterogeneous group to be studied at large. Additional analyses on three individual markets exhibited mixed results, indicating the innovation framework in emerging markets should only be studied with a model that is adapted to the context of the specific market.

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1. Introduction

Emerging markets have recently gone through a major economic rise (Buerki et al., 2014).Therefore, emerging markets have become an increasingly popular topic in business literature, for good reason (Kearney, 2012; Luo & Tung, 2007). First, the developed markets are becoming more and more saturated (London & Hart, 2004). Secondly, the emerging markets pose enormous business opportunities due to their vast size, largely untapped markets and high growth rate compared to the developed markets (Kearney, 2012; London & Hart, 2004; Luo & Tung, 2007). The potential of these markets is nicely illustrated by the fact that out of the six most attractive countries to do business five are considered to be developing countries (UNCTAD, 2017). However, these opportunities are not easily capitalised, since most models and frameworks are based on western or developed country businesses (Iyer, LaPlaca & Sharma, 2006; Prahalad & Lieberthal, 1998). These models and frameworks might not be applicable in an emerging market context and, therefore, need to be tailored to meet the environment of the emerging markets (Iyer, LaPlaca & Sharma, 2006; Prahalad & Lieberthal, 1998). This is where science can make a contribution by reassessing predominant theories and gain deeper insights into the emerging market context (Kearney, 2012).

In order to get a better understanding of doing business in new markets and assess the differences between markets, one has to analyse the local institutions, especially when it concerns emerging markets (Peng, 2002; Wright et al., 2005). North (1991) defines institutions as “humanly devised constraints that structure political, economic and social interaction.”(p.97). The institutional system of emerging markets is in some aspects typically different from the developed markets’ (Khanna & Palepu, 2010; London & Hart, 2004). First of all, formal contracts are less meaningful in emerging markets, in which social contracts are more important (London & Hart, 2004). In order to be successful in emerging markets, firms need to be socially embedded and build social ties, based on personal trust and relations (Li, 2008; London & Hart, 2004). Secondly, emerging markets are typically characterised by higher transaction costs and an underdeveloped labour, capital and product markes compared to the developed markets (Khanna & Palepu, 2010). By all means, this does not mean emerging markets are a homogenous group with a completely similar institutional system (Hoskisson et al., 2013). However, the institutions in emerging markets are different from the developed markets’. This has consequences for doing business in the emerging markets, since institutions can increase productive behaviour when properly designed, but have the opposite effect when they are weak (Dollar & Kraay, 2003; Greif, 2006).

One way weak institutions affect a business is by hampering innovation (Barasa et al., 2017; Seitz & Watzinger, 2017; Fischer & Tello-Gamarra, 2017). To be more precise, a study on forty African countries found the poor regulatory quality, poor rule of law and prevalent corruption in emerging markets directly hinders innovation (Oluwatobi et al., 2015). However, the study of Barasa et al. (2017) found these institutional imperfections actually moderate the effect of a firm's resources on its innovation output, instead of directly affecting innovation. One downside of Barasa et al.'s (2017) study is that it only compares regions in East-Africa and only addresses human capital, managerial experience and R&D as possible drivers of innovation output, whereas there is reason to belief more drivers play a role in this process. Moreover, since Tödtling and Trippl (2005) argue innovation activities differ across regions, it makes sense to compare the innovation processes across different emerging markets. Above all, because emerging markets are not a homogenous group (Hoskisson et al., 2013).

1.1 Purpose & research question

This research strives to gain more understanding of the innovation process in emerging markets by studying what the drivers and outcomes of innovation in emerging markets are and what effect institutional quality has on these. This has led the following research question:

What are the drivers and outcomes of innovation in emerging markets and how does institutional quality affect these relationships?

1.2 Relevance

The relevance of this study is essentially threefold. The results could have organisational, societal and scientific relevance. Emerging markets pose great opportunities for organisations due to their size, largely untapped markets, and high growth rate compared to the developed markets (Kearney, 2012; London & Hart, 2004; Luo & Tung, 2007). However, more knowledge of these markets is needed to successfully capitalise these opportunities. Developing a better understanding of innovation in these emerging markets could lead to better overall firm performance, since innovativeness has been found to positively influence organisational performance (Calatone et al., 2002; Jiménez-Jiménez & Sanz-valle, 2011; Rosenbusch et al., 2011). Besides better understanding innovation in emerging markets, comprehending the differences between emerging markets has considerable organisational relevance as well. Mainly, because emerging markets do have differences due to their institutional dissimilarities (Hoskisson et al., 2013; Todtling &Trippl, 2005). A one-size-fits-

all approach would not encompass these differences and, therefore, organisations should adjust their approach to the different institutional frameworks (Prahalad & Lieberthal, 2003; Todtling &Trippl, 2005). Concluding, this study could help organisations understand the role of local institutions on their innovativeness and, thereby, improve their innovativeness to, consequently, increase organisational performance.

Regarding this study's societal relevance, it could help emerging markets advance in their development. This is derived from the idea emerging markets are mostly focussing on their domestic markets (Robson et al., 2009). However, only serving the domestic demand is presumed to be insufficient for attaining economic growth (Hipkin & Bennett, 2003). Innovative businesses can generate employment, develop the domestic economy and allow firms to participate in international markets (Robson et al., 2009). Engaging in foreign markets, on its turn, enhances the domestic development, creating a virtuous circle (Robson, et al. 2009). This process can help to improve the human welfare in emerging markets. Thus, better understanding innovation in emerging markets can contribute to the development of the societies. In addition, weak institutions can hamper innovation and, therefore, inhibit socioeconomic development, whereas strong institutions can help it prosper (Fischer & Tello-Gamarra, 2017; Rodrik, 2000). For that reason, gaining more insights into institutional weaknesses helps to identify how the development of emerging markets can be improved.

Additionally, the results of this study can have scientific relevance as well. Although emerging markets have often been studied, a stream of innovation in emerging markets literature has not yet been fully developed (Kearney, 2012). One article that does study innovation in emerging markets is Barasa et al.'s (2017), which assesses the influence of institutions. The paper found institutions moderate the innovation process, but it neglected some organisational variables and only studied some East-African countries (Barasa et al., 2017). In order to gain a better understanding of innovation and the role of institutions, in emerging markets, this study will evaluate multiple emerging market regions, since the studies of Tödtling and Trippl (2005) and Hoskisson et al. (2013) argue these emerging markets are not homogeneous and should, therefore, be compared. This extends the body of knowledge on innovation in emerging markets and helps science advance in this topic.

1.3 Structure

The remainder of this research comprises five more chapters. The second chapter will dive more deeply into the current scientific literature on emerging markets, institutions and

innovation. Based on this literature assessment, hypotheses will be formulated, accompanied with a conceptual model. The methodology, required to test the hypotheses, will be presented in the third chapter. The fourth chapter will assess the validity and reliability of the construct and analysis. If this is deemed to be satisfactory, the hypotheses will be tested. The fifth chapter will discuss the results of the fourth chapter. The sixth and final chapter presents the study's conclusion and converts it into practical and scientific implications. Lastly, this chapter will attend the study's limitations and pose some suggestions for further research.

2. Theoretical framework

The theoretical framework will provide an overview of the current scientific literature on the topics of emerging markets, innovation and institutions. When these topics are elaborated thoroughly, the hypotheses will be formulated. Based on these hypotheses a conceptual model is being proposed.

2.1 Emerging markets

This paragraph will improve the understanding of the concept of emerging markets, so other theories can be related to the topic. Since there are several terms for countries in the process of development, which partly overlap, a definition of emerging markets will provide guidance throughout the remainder of this research (Luo & Zhang, 2016). Hoskisson et al. (2000, p.249) define emerging markets as "low-income, rapid-growth countries using economic liberalization as their primary engine of growth". Hoskisson et al. (2013) identified the countries that met this definition and this list comprises most Asian and Latin-American countries, several eastern European countries, the Middle-East and North-African (MENA) countries and some Sub-Saharan countries (please see Appendix A for the exact list). Although these countries can be defined as emerging markets, there are still differences in their level of "emergingness" according to Khanna and Palepu (2010), who argue it concerns a continuum. This is demonstrated by the fact that these countries are, on the one hand, quite similar due to their rapid growth rate, instability and constantly changing environment (Bruton, Lau & Obloj, 2014; Hoskisson et al., 2000; Hoskisson et al., 2013; Meyer & Peng, 2016). However, on the other hand, these countries differ in their level of economic growth and wealth, their quality of infrastructure and their institutional quality (Hoskisson, 2013; Vassolo, De Castro & Gomez-Mejia, 2011; Zahra, 2011; Zoogah, Peng & Wolda, 2015). Many emerging markets have only recently lifted their protectionist regulations (Hennart, 2012). Therefore, companies from developed countries do not yet have a solid understanding of doing business in these emerging markets, which gives firms from emerging markets an advantage (Ramamurti, 2012). Research on doing business in emerging markets can help to close this knowledge gap between firms from developed and emerging countries. The research on emerging markets is roughly split in two. Some argue new theories should be developed in order to understand doing business in emerging markets, others argue existing literature suffices (Ramamurti, 2012). Ramamurti (2012) suggests the truth is somewhere in the middle and current research should prove what existing knowledge is also applicable in

emerging markets and what needs alteration. This study will assess the innovation framework in emerging markets. Therefore, the next paragraph will further elaborate on innovation.

2.2 Innovation

Innovation is a widely studied subject (Aragwal & Brem, 2012). For that reason, there are many definitions of the term innovation. This research will use the definition of Bercovitz and Feldman (2007) who define innovation as "the ability to create economic value from new ideas" (p.931). For the sake of clarity, Schroeder et al. (1986) argue these new ideas mainly are new technologies, organisational processes, or arrangements. These new ideas need to be successfully developed and implemented in order to be a success (Garcia & Catalone, 2002; Krishnan & Jha, 2011). This process of innovating and successfully implementing it in the market is essential for a firm's competitive strategy (Krishnan & Jha, 2011). When firms are able to continuously innovate it can lead to firm survival, success and growth (Back, Parboteeah & Nam, 2014; Story, Boso & Cadogan, 2015). Moreover, innovation not only results in positive firm related outcomes, but also in increased economic development and competitiveness for regions and nations (Tödtling & Trippl, 2005).

Where Barasa et al. (2017) only studied one type of innovation, this study includes the two types of innovation, namely product/service innovation and process innovation (Utterback & Abernathy, 1975). Process innovation is defined as "the cumulative improvements to the entire (production) process, which is applied to create a product or service" (Brem, Nylund & Schuster, 2016, p.81). Product/service innovation, on the other hand, comprises "a new or significantly improved product (good or service) introduced to the market" (Radas & Božić, 2009, p.438). Referring back to this research's main definition of innovation, the difference between process and product/service innovation is whether the new idea creates economic value via an internal mechanism or via improving products/services to the market. Barasa et al. (2017) only included product/service innovation in their study. However, both these types of innovation will be included in this study, since they represent two facets of the otherwise very broad concept of innovation, and are distinctively different. Moreover, due to the exploratory nature of this research examining both product/service innovation and process innovation can provide more insights into the exact innovation framework in emerging markets to which this study strives to contribute. Only studying one of these innovation types would not do justice to the concept of innovation and could result in missing out on some organisationally, socially and scientifically relevant outcomes.

Many studies assessed the drivers of these types of innovation. The most straightforward way to enhance any type of innovation is by R&D (Cassiman & Veugelers, 2006; Cohen & Klepper, 1996). However, this is not the sole driver of innovation. Other drivers of innovation are interaction with foreign firms, managerial experience and human capital (Barasa et al., 2017; Wang & Kafouros, 2009; Wu et al., 2016). Porter and Stern (2001) argue innovation cannot be attributed to just one driver but to the interplay of firm and environment characteristics. Firms have to consciously adapt their innovation strategy to the local environment in order to capture locational advantages (Porter & Stern, 2001). For this reason, innovation in an emerging market environment has to be studied too. Up till now, innovation strategies in emerging markets stem from research in developed markets (Radas & Božić, 2009). Therefore, the emerging market environment has been largely neglected. This originated from the idea that developed economies outperform emerging markets in their innovation capabilities (Luo, Sun & Wang, 2011; Luo & Tung, 2007). This idea, however, is outdated, since emerging markets are increasingly establishing themselves as significant contributors to global innovation (Kumar, Mudambi & Gray, 2013). This calls for an understanding of the local environment, because innovation in emerging markets cannot be solely attained by foreign investments in the markets (Back, Parboteeah & Nam, 2014; Wang & Kafouros, 2009). In order to succeed, there needs to be some degree of a local innovation framework in the particular market (Wang & Kafouros, 2009). The benefit of local innovation is twofold. First off, innovation in emerging markets requires a local component, as discussed above. Second, local innovation enhances the survival, success and growth of emerging market firms, which, consequently, improves the economic developed and competitiveness for regions and nations (Back, Parboteeah & Nam, 2014; Story et al., 2015;Tödtling &Trippl, 2005).

What makes studying innovation in emerging markets both challenging and valuable is the uncertainty firms face in emerging markets (Back, Parboteeah & Nam, 2014; Khanna & Palepu, 2010). Innovation is inherently uncertain and the presence of institutional voids in emerging markets also foster uncertainty (Back, Parboteeah & Nam, 2014; Khanna & Palepu, 2010). Since well-developed institutions minimise the transactions costs associated with these uncertainties, well-developed institutions increase the number of successful innovations (Story et al., 2015). Therefore, one should always incorporate institutions when studying innovation in emerging markets (Ayyagari, Demirgüç-Kunt & Maksimovic, 2011; Hadjimanolis, 2000). Porter & Stern (2001) even go this far that the most important role for

governments, in stimulating innovation, is not to invest in R&D, but to improve the innovation environment of a country. Well-developed institutions in emerging markets have already been found to decrease the need for R&D investments (Back, Parboteeah & Nam, 2014). Moreover, Barasa et al. (2017) found institutional quality to moderates the effect of firm capabilities on innovation. Another way institutions in emerging markets can constrain innovation is by their constant change (Radas & Božić, 2009). This hinders a firm's ability to adapt to the local environment (Radas & Božić, 2009). Adapting to the local environment is especially important in emerging markets, since firms need a specific innovation strategy suited to the local market characteristics (Krishnan & Jha, 2011). To better understand this moderating effect, the next paragraph will dive further into institutions and, more specifically, institutions in emerging markets.

2.3 Institutions

The most popular and arguably the best method to study emerging markets is the institutional theory (Luo & Zhang, 2016). Therefore, this paragraph will elaborate the concept of institutions and address the institutional quality in emerging markets. This research makes use of North's (1991) definition of institutions, which states institutions are "humanly devised constraints that structure political, economic and social interaction."(p.97). The core rationale behind restricting your own environment stems from the game theoretical idea that cooperation between parties can be hard to attain (North, 1991). Well-developed institutions can, therefore, induce productive behaviour and reduce transaction costs and uncertainty (Alonso & Garcimartin, 2013; Dollar & Kraay, 2003). However, inadequate institutions can have an opposing effect (Greif, 2006; Wu et al., 2016). The institutional framework differs from place to place and therefore the effect on political, economic and social interaction differs as well (Carney, Dieleman & Taussig, 2016). The effect institutions have on businesses is illustrated by the dominance of the institutional view when studying emerging markets. The reason the institutional view is more prevalent in emerging market research, in comparison to research on developed markets, is that institutions might seem like a background for firms operating in developed markets (Peng et al., 2008). This can seem because of the stable and smoothly working institutional framework in these developed countries (Peng et al., 2008). In emerging markets, however, the institutional framework is relatively unstable and not well functioning (Peng et al., 2008). As a result, institutions have a far greater influence on businesses and thus one should study the institutional framework in emerging markets (Meyer & Peng, 2016). However, firms should not take institutions for

granted and objective (Doh et al., 2017). Deficiencies in the institutional framework can induce firms to improve their practices to the local context (Lu & Xu, 2006). Since the institutional framework in emerging markets is less refined, firms in emerging markets experience poor legal protection and a weak capital market (Estrin et al., 2009). Firms in emerging markets have to change their organisation in order to overcome these institutional shortcomings (Meyer & Peng, 2007). If firms in emerging markets succeed, they can even create competitive advantages (Peng et al., 2008; Lessard, 2014). The environment in emerging markets is unstable and quickly changing, compared to developed markets', and, therefore, have developed flexibility and capabilities to respond to these changes (Meyer & Peng, 2016). This can even give the emerging market enterprises a competitive advantage over firms from developed markets (Meyer & Peng, 2016).

Barasa et al. (2017) argue the institutional quality comprises three aspects, namely the rule of law, regulatory quality and control of corruption. This operationalisation of institutional quality will be used throughout the rest of this study, starting with the hypotheses formulation in the upcoming paragraph.

2.4 Hypotheses

Now the study's topics have been further explained, it is time to formulate hypotheses in order to answer the research question. The organizational antecedents that drive innovation will be assessed first, followed by the proposed moderating effect of institutional quality on this relationship. Some of these effects were already tested in the study of Barasa et al. (2017), some other effects are newly proposed effects. Next, the effect of innovation on certain performance outcomes will be assessed, again followed by a proposed moderating effect of institutional quality on this relationship. The Barasa et al. (2017) paper did not assess any performance outcomes of innovation and the possible moderating effect institutional quality can have, although there is reason to believe the effect of innovation output on a firm's performance outcomes is moderated by institutional quality as well. This moderating effect on innovation output and performance outcomes will be further elaborated in the specific paragraph.

2.4.1 Organisational antecedents and innovation

The first hypothesis involves the direct effect of managerial experience on innovation. This relationship has already been studied and led to the belief managerial experience does positively affect a firm's innovation output (Custodio, Ferreira & Matos, 2017; Shane, 2000).

The main argument Custodio, Ferreira and Matos (2017) make is that experienced managers are more aware of developments in other industries and can reuse ideas from his or her earlier work, increasing the current firm's innovative abilities. Shane (2000) adds an experienced manager's prior knowledge helps him or her see opportunities others do not. Thus both rely on the theory that a manager's knowledge and information determine his or her innovation capacity (Custodio, Ferreira & Matos, 2017; Shane, 2000). Although the studies of Custodio, Ferreira and Matos (2017) and Shane (2000) were conducted in a developed market, Acquaah (2012) established similar results in his study on managerial experience in Ghana, indicating these arguments also apply in an emerging market context. Shane (2000) makes a differentiation between product/service innovation and process innovation. Regarding product/service innovation, Shane (2000) claims experienced managers are better able to create products or services fulfilling specific customer needs, since they can rely on earlier knowledge to see opportunities that managers with less experience cannot replicate. On the other hand, a manager's prior knowledge helps him or her better interpret and implement new information into improved business processes (Shane, 2000). These insights suggest managerial experience has a direct positive effect on both a firm's product/service innovation output and process innovation output. The logic behind the effect of managerial experience on both product/service and process innovation is, therefore, quite similar, since both argue experienced managers possess more knowledge which enables them to innovate the firm's products/services or processes. This has led to the following hypotheses:

H1a: *Managerial experience positively affects a firm's product/service innovation output.*

H1b: *Managerial experience positively affects a firm's process innovation output.*

Along this line of reasoning, a manager's experience positively affects a firm's innovation output. However, Barasa et al. (2017) argue an experienced managers ability to innovate is mitigated by low levels of institutional quality. Low levels of institutional quality consume a manager's time and effort, which decreases the manager's attention to innovation activities (Barasa et al., 2017). Hence, high levels of institutional quality enable a manager to focus more on innovation activities and, therefore, allows a firm to extract more value of the manager's experience (Barasa et al., 2017). Utterback (1971) argues spending less time on a project hampers the product innovation output and Arundel and Kabla (1998) make the same argument for process innovation. Therefore, the time-consuming effect of poor institutional quality will likely influence the effect of managerial experience on both product/service and

process innovation. Although the study of Barasa et al. (2017) did not find a moderating effect, it will be hypothesised in this study nonetheless. This is mainly because the study of Barasa et al. (2017) only included three East-African countries, whereas this one included multiple emerging markets identified by Hoskisson et al. (2013), which might lead to different results. This has led to the following hypotheses:

H2a: *A country's institutional quality positively affects the influence of managerial experience on a firm's product/service innovation output.*

H2b: *A country's institutional quality positively affects the influence of managerial experience on a firm's process innovation output.*

Besides a manager's experience, a skilled workforce is also expected to influence a firm's innovation output. Liu and Buck (2007) argue skilled workers contribute to a firm's innovation performance. This emanates from the relatively high level of knowledge required for innovation (Dakhli & De Clerq, 2004). A skilled workforce is better able to perform some technical and intellectual tasks associated with innovation, is able to modify these to the specific firm processes and would, therefore, be more likely to contribute to a firm's innovation output (Avermaete et al., 2004; Dakhli & De Clerq, 2004; Liu & Buck, 2007). Pholphirul and Rukumnuaykit (2013) verify this in their study on (un)skilled labour in Thailand. A skilled workforce was found to have a positive direct effect on product and process innovation. Whereas an unskilled workforce had the exact opposite effect, which is in line with the studies on developed markets (Pholphirul & Rukumnuaykit, 2013). These findings in emerging markets provide evidence that the proportion of skilled workforce will positively affect the firm's product/service and process innovation output in this study. This has led to the following hypotheses:

H3a: *The proportion of skilled workforce positively affects a firm's product/service innovation output*.

H3b: *The proportion of skilled workforce positively affects a firm's process innovation output.*

Barasa et al. (2017) found institutional quality has a moderating effect on the relationship between the proportion of skilled workforce and a firm's innovation output. They argue the quality of the educational system determines the workforce's level of skill (Barasa et al., 2017). Low levels of institutional quality harm the educational system, in that the educational quality is damaged. (Heyneman, 2004). As a result, the workforce will obtain a

lower level of skills from their education and, therefore, cannot utilise all the required skills necessary for increasing a firm's innovation output. Thus, the negative effect poor institutional quality has on the educational system results in the firm not being able to extract the full potential out of their workforce (Barasa et al., 2017). High levels of institutional quality, on the other hand, can enable the workforce's ability to innovate and, in that manner, strengthen the relationship between a skilled workforce and a firm's innovation output. This has led to the following hypotheses:

H4a: *A country's institutional quality positively affects the influence of the proportion of skilled workforce on a firm's product/service innovation output.*

H4b: *A country's institutional quality positively affects the influence of the proportion of skilled workforce on a firm's process innovation output.*

Not only does a skilled workforce enhance a firm's innovation output, the level of education does so too (Barasa et al., 2017). Educated employees are more likely to be aware of issues beyond their immediate work, because of their higher absorptive capacity (Leiponen, 2005; Mol & Birkinshaw, 2009). Therefore, more highly educated employees can generate new ideas to improve current products/services or processes, since these employees not just do, but are actually thinking about what is required (Barčić, Vlosky & Motik, 2011; Mol & Birkinshaw, 2009). Leiponen (2005) stresses the importance of an entirely educated workforce, opposed to top levels only, since innovations can emerge from all functions of the firm. As a result, the firm enjoys a larger knowledge base, which helps to increase product/service and process innovation output (Radas &Božić, 2009). Multiple studies have found a significant effect of the employee's education level on a firm's product/service and process innovation output (Barčić et al., 2011; Mol & Birkinshaw, 2009). In addition, Almeida (2010) also established this positive effect on both types of innovation in her study on East Asian firms and, therefore, these effects would most likely also apply in an emerging market context. These findings have led to the following hypotheses:

H5a: *Employee's level of education positively affects a firm's product/service innovation output.*

H5b: *Employee's level of education positively affects a firm's process innovation output.*

Institutional quality is hypothesised to moderate the effect of an employee's level of education on the firm's innovation output. The main idea behind this effect stems from

Biswal's (1999) finding that a low level of institutional quality, more specifically high levels of corruption, impedes a country's educational quality. When the educational system is underperforming firms cannot utilise the full potential of their employees, which hinders the firm's ability to innovate (Barasa et al., 2017). More specifically, the low quality of education results in a smaller knowledge base which lessens the ability to come up with product/service or process innovations. Therefore, low levels of institutional quality are likely to mitigate the positive effect of an employee's level of education, whereas high institutional quality propels this effect. This has led to the following hypotheses:

H6a: *A country's institutional quality positively affects the influence of the employee's level of education on a firm's product/service innovation output.*

H6b: *A country's institutional quality positively affects the influence of the employee's level of education on a firm's process innovation output.*

The effect of R&D activities on a firm's innovation output seems straightforward and many studies even take the direct effect as a given (Barasa et al., 2017; Porter & Stern, 2001). However, it is still worth it to elaborate on the effect of R&D activities on a firm's innovation output and why it affects both product/service and process innovation output. R&D is considered to generate new information and foster learning, which are essential for innovation (Freel, 2003;Rogers, 2004; Romijn & Albaladejo, 2002). This positive relationship was also established in research on emerging markets (Hadjimanolis, 2000). R&D can enhance process innovation by creating new knowledge and foster learning on development processes (Cohen & Klepper, 1996). On the other hand, R&D can also lead to new technological information, which helps to improve products and services, and hence positively affects the firm's product/service innovation output (Romijn & Albaladejo, 2002). Freel (2003) found R&D activities does positively affect product/service innovation and process innovation simultaneously. This has led to the following hypotheses:

H7a: *R&D activities positively affect a firm's product/service innovation output.*

H7b: *R&D activities positively affect a firm's process innovation output*.

The effect of R&D activities on a firm's innovation output, too, is expected to be moderated by institutional quality. Zhao (2006) argues low institutional quality inhibits the protection of intellectual property and, therefore, firms cannot extract an R&D investment's full value. Moreover, corruption, an indicator of institutional quality, also hampers innovation activities, since firms are profiting less from their innovations (Barasa et al., 2017). Overall,

an environment with low institutional quality requires more R&D efforts to achieve a similar innovation output as a firm in a high institutional quality environment (Back et al., 2014). Thus, a firm can only fully benefit from its R&D activities if the institutional quality is high. This has led to the following hypotheses:

H8a: *A country's institutional quality positively affects the influence of R&D activities on a firm's product/service innovation output.*

H8b: *A country's institutional quality positively affects the influence of R&D activities on a firm's process innovation output.*

The following hypothesised relationship is less clear-cut than the effect of R&D. However, scientific literature does suggest foreign ownership affects both a firm's product/service and process innovation output (Falk, 2008; Guadalupe, Kuzmina & Thomas, 2012). That is to say, successful innovation requires firms to incorporate diverse knowledge and resources from various countries (Wu et al., 2016; Yamaka, Peng & Deeds, 2008). Firms with foreign ownership have greater access to diverse knowledge and resources, since MNEs are expected to share these with subsidiaries (Wu et al., 2016). Moreover, MNEs share superior technology and organisational practices with their subsidiaries, which are deemed to enhance the innovation output of the local firm (Falk, 2008; Guadalupe et al., 2012). Foreign ownership has been found to have a positive effect on both product/service and process innovation output (Balcet & Evangelista, 2005; Guadalupe et al., 2012). Falk (2008) even found having foreign ownership has a stronger effect on product/service and process innovation output in emerging markets than in developed market firms. This can be explained by the notion that emerging market firms have limited access to superior technology and organisational processes, which can be provided by foreign firms (Wu et al., 2016). This has led to the following hypotheses:

H9a: *foreign ownership positively affects a firm's product/service innovation output.*

H9b: *foreign ownership positively affects a firm's process innovation output.*

Firms benefit from foreign ownership due to the knowledge and technology sharing, which leads to more innovation output. However, countries with a low level of institutional quality lack protection of knowledge and, therefore, innovation is more easily copied by competitors (Zhao, 2016). As a result, firms will experience less competitive advantages from their innovation (Barney, 1991). For this reason, foreign firms might restrain their knowledge

and technology sharing with local subsidiaries, since their knowledge and technology cannot be well protected. Therefore, firms will benefit more from having foreign ownership if their country's institutional quality is high. This has led to the following hypotheses:

H10a: *A country's institutional quality positively affects the influence of foreign ownership on a firm's product/service innovation output.*

H10b: *A country's institutional quality positively affects the influence of foreign ownership on a firm's process innovation output.*

Not only is foreign ownership expected to affect a firm's innovative output, literature also suggests it is positively influenced by exporting. The main rationale behind this hypothesis is that exporting firms interact with foreign actors, which expose them to new insights (Salomon & Shaver, 2005). Firms, only operating in the domestic market, are not exposed to insights of foreign actors and would, therefore, have less innovative capacity (Salomon & Shaver, 2005). Thus exporting firms can use knowledge from both foreign and domestic markets in their domestic market, whereas non-exporting firms are limited to knowledge from the domestic market only (Girma, Görg & Hanley, 2008). More precisely, exporting has been found to positively affect a firm's process innovation output, since information from foreign markets can help to reflect on the processes in the domestic market (Damijan, Kostevc & Polanec, 2010; Salomon & Shaver, 2005). A firm's product/service innovation output, on the other hand, has also been found to be affected by exporting activities, since exporting firms are exposed to a larger base of technological knowledge and, therefore, are more likely to innovate their product or services (Girma et al., 2008; Love & Ganotakis, 2013; Yeoh, 2004). These findings have led to the following hypotheses:

H11a: *The firm's exporting status positively affects a firm's product/service innovation output.*

H11b: *The firm's exporting status positively affects a firm's process innovation output.*

The argumentation for the moderating effect of institutional quality on the effect the percentage of exporting firms has on a firm's innovation output is much like the previously discussed foreign ownership's. Firms benefit from exporting, because it introduces them to new knowledge and information (Girma et al., 2008). This gives exporting firms an advantage over non-exporting firms in their home market, since exporting firms are exposed to more possibly relevant information and knowledge. However, exporting firms can only benefit from this advantage over non-exporting firms, if they can effectively protect this acquired

foreign knowledge from the competitors in their home market (Barney, 1991). Since this is not always the case, firms cannot always benefit from their innovations and, therefore, might feel less inclined to innovate. Thus, low institutional quality can hamper a firm's innovation output, whereas high institutional quality spurs a firm's innovation output, since its knowledge is safeguarded. This has led to the following hypotheses:

H12a: *A country's institutional quality positively affects the influence of the firm's exporting status on a firm's product/service innovation output.*

H12b: *A country's institutional quality positively affects the influence of the firm's exporting status on a firm's process innovation output.*

2.4.2 Innovation and performance outcomes

For the managerial practice the performance outcomes of innovation are arguably just as important as its drivers. Firms innovate with the intention to better meet environment demands and, thereby, improve their performance (Kostopoulos et al, 2011). For this reason, assessing the results of innovation is valuable for a firm. This study included two performance outcomes, namely the firm's annual sales growth and its capacity utilisation. The reasoning behind the selection of these two variables is that annual sales growth represents the increase of product/service sales and, therefore, captures the success of a firm's product/service innovation (Srinivasan et al., 2009). Whereas capacity utilisation describes the improvement of organisational processes, which captures the success of a firm's process innovation (Nightingale et al., 2003). The hypothesised effect of innovation output on annual sales will be elaborated first. A firm's annual sales growth is particularly relevant measure of innovation performance, since innovations are typically known to increase sales instead of profit margins (Coad & Rao, 2008). The annual sales growth is expected to be improved by innovation output, because innovative firms are better aligned with customer needs and remain more up to date (Srinivasan et al., 2009). This positive effect was found in several studies on both product/service and process innovations (Coad & Rao, 2008; Kostopoulos et al., 2011; Mansury & Love, 2008). In addition, Choi and Williams (2014) also established these findings in an emerging market. This has led to the following hypotheses:

H13a: *Product/service innovation output enhances a firm's annual sales growth.*

H13b: *Process innovation output enhances a firm's annual sales growth.*

Institutional quality is believed to moderate the effect of innovation output on its performance outcomes too. The innovation performance not only depends on the organisational driver, but on its institutional environment as well (Yam et al., 2004). An underdeveloped government and legislation, depicting low institutional quality, hamper a firm's ability to turn innovation into organisational success (Li & Atuahene-Gima, 2001). The main reason innovation is not efficiently translated into increased annual sales growth is that patents and knowledge are not well protected, which is typical for countries with low institutional quality (Yang & Jiang, 2007). When these are unprotected innovating becomes riskier and less profitable, since it can be easily imitated (Li & Atuahene-Gima, 2001). As a result, firms will gain a smaller or even will not gain any competitive advantage and, therefore, extract a smaller annual growth sales from their innovation output. This has led to the following hypotheses:

H14a: *A country's institutional quality positively affects the influence of a firm's product/service innovation output on its annual sales growth.*

H14b: *A country's institutional quality positively affects the influence of a firm's process innovation output on its annual sales growth.*

Another relevant performance outcome of innovation is capacity utilisation. The term capacity utilisation represents "the ratio of the actual level of output to a sustainable maximum level of output, or capacity" (Corrado & Mattey, 1997, p.152). The higher the capacity utilisation the more efficient a firm is operating. Crepon, Duguet and Mairesse (1998) stress it is only enhanced by innovation output, instead of innovation drivers. More specifically, a firm's capacity utilisation is related to its business processes (Nightingale et al., 2003). For that reason, process innovation is expected to positively enhance a firm's capacity utilisation. Several studied confirmed the positive effect of process innovation on capacity utilisation (Griffith et al., 2006; Huergo & Jaumandreu, 2004; Laforet, 2013; Nightingale et al., 2003). Since capacity utilisation is so closely related to a firm's internal processes, product/service innovation is not expected to influence the firm's capacity utilisation. For this reason, only the effect of process innovation in capacity utilisation is hypothesised in this study. These findings have led to the following hypothesis:

H15: *Process innovation output enhances a firm's capacity utilisation.*

Apart from the direct effect of innovation output on capacity utilisation, a country's institutional quality could well be a moderator. Huergo and Jaumandreu (2004) argued

innovation output positively affects the growth of capacity utilisation as long as it does not become common knowledge in the industry. Thus, process innovation output does improve capacity utilisation, but this positive effect lessens when other firms start introducing it too. Since knowledge is less well protected in environments characterised by a low level of institutional quality, innovations are more easily copied (Zhao, 2016). For this reason, the positive effect of innovation output on capacity utilisation will last shorter, or might not even apply, in low institutional quality environments, whereas high institutional environments cause the positive effect to be more effective. This has led to the following hypotheses:

H16: *A country's institutional quality positively affects the influence of a firm's process innovation output on its capacity utilisation.*

2.5 Conceptual model

The conceptual model depicted below resembles all hypotheses formulated in the previous paragraph. For clarity purposes, the dimensions of institutional quality are also represented in the conceptual model, since institutional quality itself can be a vague term. Including these dimensions in the conceptually model helps to grasp the content of this study in one single image. The half concerning the organizational drivers of innovation and innovation output partly resembles the study of Barasa et al. (2017). In addition to these drivers, suggested by Barasa et al. (2017), this study argues foreign ownership and exporting status, too, have a positive direct effect and are moderated by institutional quality. Lastly, performance outcomes were included, since these add both managerial relevance and can give more insights into the moderating effect of institutional quality on a firm's innovation framework.

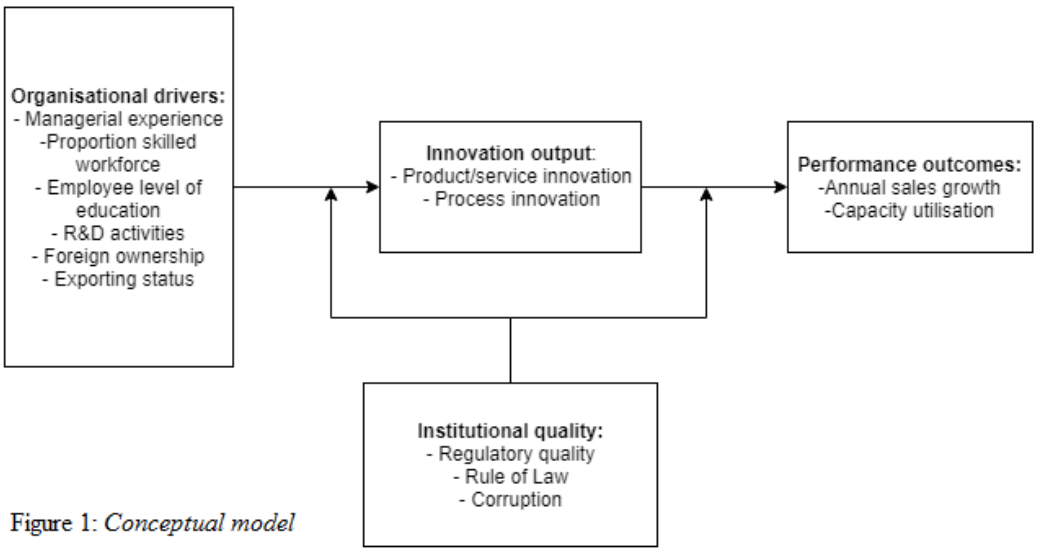

Figure 1: *Conceptual model*

3. Methodology

This chapter will address the methodology needed to test the previously formulated hypotheses. This consists of the method of analysis and assessing the study's validity and reliability beforehand. This also comprises assessing the quality of the database and providing a short description of each used variable. In addition, some research ethics will be highlighted. Lastly, the selection of data will be clarified.

3.1 Data

This study will make use of the data collected in the World Bank Enterprise Survey (ES). The ES is a publicly available firm-level database, which represents a country's private sector (World Bank Group, n.d.). The respondents in the ES are mostly top managers and business owners in the manufacturing and service industry (World Bank Group, n.d.). As a result, some questions have only been asked to either manufacturing or service firms. These questions will not be included in the study, since examining the effect of a variable, derived from manufacturing firm questions, on a variable, derived from service firm question, will lead to false insights, because logically no relationship will exist between the two. The data is collected in face-to-face interviews conducted by private contractors (World Bank Group, n.d.). Lastly, the survey sample is randomly selected out of all firms with over 5 employees, that are recorded by government agencies (World Bank Group, n.d.).

3.2 Variable description

Managerial experience– This variable represents the years a manager has worked in the firm's sector, which is identical to the proxy in Firth et al.'s (2009) study (World Bank Group, 2017).

Proportion skilled workforce–The proportion of skilled workforce is measured by how many of the full-time working individuals had the skills required for their specific job at the end of the fiscal year, which is in line with the study of Ahmed, Feeney and Posso (2016) (World Bank Group, 2017).

Employee level of education–This variable resembles the percentage of employees who have at least completed secondary education (World Bank Group, 2017). This is in line with the Barasa et al. (2017) study, which also adopted secondary education as a threshold.

R&D activities–The R&D activities are represented by a dummy variable taking the value "1" if the firm did spend on R&D in the last fiscal year and taking the value "0" if the firm did not, which is in line with Lin, Lin and Song's (2010) study (World Bank Group, 2017).

Foreign ownership– Foreign ownership is represented by a dummy variable taking the value "1" if at least 10% of the firm is owned by foreign individuals or organisation and taking the value "0" if the firm has less than 10% foreign ownership, which is identical to Moyo's (2013) operationalisation (World Bank Group, 2017).

Exporting status– Exporting status is represented by a dummy variable taking the value "1" if at least 10% of the firm's annual sales is derived from direct exports and taking the value "0" if less than 10% of the firm's annual sales are derived from direct exports, which is in line with Nguyen et al.'s (2008) study (World Bank Group, 2017).

Product/service innovation– The product/service innovation is represented by a dummy variable taking the value of "1" if the firm introduced a new or significantly improved product or service to their main markets in the last three years and taking the value "0" if the firm did not, which is similar to Barasa et al.'s (2017) approach (World Bank Group, 2017).

Process innovation– The process innovation is represented by a dummy variable taking the value of "1" if the firm introduced any new or significantly improved processes and taking the value "0" if the firm did not, which is along the same line of reasoning as the operationalisation of product/service innovation in Barasa et al's (2017) study (World Bank Group, 2017).

Annual sales growth– This variable measures the percentage change in sales between the last completed fiscal year and the previous one, which is identical to Williams, Martinez-perez and Kedir's (2017) approach (World Bank Group, 2017).

Capacity utilisation– The capacity utilisation is calculated by comparing the current output with the maximum output possible, which corresponds with Mojekwu and Iwuji's (2012) approach (World Bank Group, 2017).

Regulatory quality–The regulatory quality is represented by the items asking respondents to what extent they regard business permits and licenses, custom and trade regulations, tax administration and tax rates as an obstacle to their business activities, just like the Barasa et al. (2017) study.

Rule of law– The rule of law variable comprises three items, namely the extent to which the respondents regarded the courts, political instability and crime, theft and disorder to be an obstacle to their business activities, again, just like the study of Barasa et al. (2017).

Corruption– The corruption variable consists of two items, namely the extent to which the respondents believe the court system is fair, impartial and uncorrupted, and the degree to which respondents regard corruption to be an obstacle to their business activities, this, too, is in accordance with the study of Barasa et al. (2017).

3.3 Method of analysis

The data will be analysed with the PLS-Structural Equation Modeling technique. This method was chosen for several reasons. First of all, PLS is able to examine large and complex (Chin, 1998). Not only does this study test thirty hypotheses, it strives to test a model with both drivers and outcomes, making the model large and complex. As a result a lot of effects have to be calculated at the same time for which PLS is well suited (Chin, 1998). Second, PLS is argued to be a very appropriate method for identifying a construct's key drivers (Hair, Ringle & Sarstedt, 2011). Since this study examines the drivers of innovation, PLS, again, appears to be an appropriate method. Lastly, all variables were reflective and, therefore, the product indicator approach was used to calculate the moderation effects (Chin, Marcolin & Newsted, 2003)

3.4 Validity & reliability

Although the validity and reliability of the construct will be assessed in chapter four, part of the study's validity and reliability can already be discussed based on the quality of the data set. All data and variables originate from the World Bank Enterprise Survey, which is well renowned. Consequently, it can be assumed the data collection happened in a good manner and, therefore, the validity and reliability would have been impaired as little as possible in this particular stage. Some measures the World Bank Group to ensure this consisted of random sampling, hiring private contractors for more honest responses, questioning interviewees with similar functions in the organisations and using a standardised question set (World Bank Group, n.d.).

3.5 Research ethics

Concerning this study's research ethics, the data collection has already been done and, therefore, the researcher has no influence on this process. However, the World Bank Group (n.d.) states they hired private contractors to conduct the Enterprise Surveys, which makes

discussing business-government relations and corruption related topics easier compared to using interviewers with government ties, since these private contractors are not directly involved with any of these topics. Moreover, the data has already been anonymised and, therefore, no privacy concerns arise in this research. Furthermore, this results of this study could make a claim for an undesired state of affairs. For example, imagine this study finds high levels of corruption actually are favourable and low levels detrimental to innovation in emerging markets. This could imply corruption should be stimulated in emerging markets, which, logically, would not help the development of these economies. Therefore, results indicating low institutional quality are actually beneficial should be interpreted with extra care.

3.6 Data selection

Although Hoskisson et al. (2013) identified sixty emerging markets, not all these markets were included in this study for theoretical and practical reasons. First of all, Hoskisson et al. (2013) included South-Korea, Israel and Taiwan, which have a GDP per capita between $22,172 and $30,6884 (World Bank Group, 2017). This is arguably too high for an emerging market and makes comparing these markets with the lower income markets difficult, which is reinforced by several more recent studies classifying these markets as developed (Liu, Chen & Wang 2017; Moon et al., 2016). For that reason, these markets were eliminated from the sample. In addition, some of the sixty initial emerging markets are part of the European Union and could, therefore, receive subsidies. As a result, the context of these countries is different from the rest's and, therefore, all EU members were removed from the sample as well. Lastly, not all data of nineteen other emerging markets was available and, therefore, these markets could not be included as well. As a result, the sample comprised twenty-two countries. The exact countries that were eliminated are listed in Appendix B along the countries that were included in the study. Furthermore, all cases with non-responses or invalid responses were removed from the dataset, since SmartPLS cannot run its analysis with an incomplete dataset. This list-wise deletion will not harm the study's validity, because the dataset still contained more than enough cases after the deletion.

4. Results

The fourth chapter will address the study's results. However, this chapter will start off with a short description of the sample. Afterwards, both the inner and outer model will be assessed, as is common for PLS analyses. The outer model was assessed with the ADANCO program, since also includes a factor analysis and the Jöreskog's rho test. The program SmartPLS was used to assess the inner model, since it can compute a standardised moderation variable following the product indicator approach. Other popular SEM software programs such as AMOS, LISREL, EQS and Mplus were not used since these carry out a covariance-based SEM, instead of a PLS-SEM.

4.1 Sample description

After removing all cases with non-responses or other invalid answers, this study included 12661 firms. Most of these firms are Indian, comprising 43.1% of all cases. Furthermore, 6.4% of the firms was foreign owned and 19.2% can be regarded as exporters. Concerning the innovation output of the firms, 28.1% introduced a product/service innovation and 42.7% a process innovation. In addition, the average institutional quality in each market was determined by calculating each firm's percentage score on each subdimension of institutional quality, i.e. corruption, regulatory quality and rule of law. A score of 100 indicates a maximum value on each indicator, whereas a score of 0 indicates the minimum score on each indicator. Two countries stood out, namely Thailand with an average institutional quality score of 92.88, being the highest, and Cote d'Ivor with an average institutional quality score of 39.81, being the lowest. The exact figures are depicted in table 1.

Table 1: *Sample characteristics*
n= 12661

	Frequency in %	Corruption	Regulatory quality	Rule of law	Institutional quality		%
Country							
Argentina	2.5	39.3	47.7	50.5	46.62	**Ownership**	
Bangladesh	8.0	47.05	70.67	57.22	60.94	Domestic	93.6
Chile	4.5	68.72	72.0	71.4	71.07	Foreign	6.4
Colombia	3.8	48.82	58.58	63.03	57.89		
Cote d'Ivor	0.2	34.38	45.83	35.42	39.81		
Ecuador	0.7	41.85	50.91	56.09	50.62		
Egypt	4.3	44.89	56.09	56.53	53.75	**Exporting status**	
Ghana	1.1	60.75	61.49	80.51	67.67	Non-exporter	80.8
India	43.1	56.9	66.09	78.03	68.02	Exporter	19.2
Indonesia	5.1	74.15	75.32	76.76	75.54		
Jamaica	0.1	58.09	56.62	62.75	58.99		
Kenya	1.9	58.39	62.16	65.90	62.57		
Malaysia	2.3	68.30	63.86	64.59	65.09	**Product/service innovation**	
Mexico	6.0	41.40	58.65	55.58	53.79	Yes	28.1
Nigeria	2.5	59.01	65.68	72.41	66.44	No	71.9
Pakistan	2.9	49.0	63.33	58.17	58.43		
Peru	2.8	39.22	56.88	52.65	51.54		
Philippines	3.0	63.71	72.16	80.64	73.11		
Sri Lanka	1.3	41.62	68.42	83.14	67.37	**Process innovation**	
Thailand	2.9	86.33	95.95	93.14	92.88	Yes	42.7
Trinidad & Tobago	0.7	50.94	60.35	60.66	58.36	No	57.3
Venezuela	0.3	45.74	56.82	57.22	60.94		

4.2 Outer model

Because the indicators of a construct are likely to be related, this study involves a reflective measurement model (Henseler, Ringle & Sinkovics, 2009). Due to the robustness of PLS typical assumptions of normality of data and minimum sample sizes do not have to be met and, therefore, these were not evaluated (Reinartz, Haenlein & Henseler, 2009). This paragraph will, however, assess the construct reliability, the indicator reliability, the convergence validity and the discriminant validity, since a reflective measurement model is being studied (Hair, Ringle & Sarstedt, 2011). Moreover, in the assessment of the outer model no structural paths were included and, consequently, no interaction effects were computed in this phase.

First of all, the construct reliability of the model will be assessed. The construct reliability determines to what extent indicators assigned to the same construct show strong connection (Götz, Liehr-Gobbers & Krafft, 2010). The Dijkstra-Henseler Rho, Jöreskog's rho and the Cronbach's alpha measures were used to test this model's construct reliability. Henseler, Ringle and Sinkovics (2009) argue a score of at least 0.7 on each of these measures is acceptable. In this model the only construct with more than one indicator is the construct of institutional quality. For this reason, all other constructs score a 1.0 on each measure and are not included in table 2. The institutional quality construct had an acceptable score on each measure, proving homogeneity of indicators and, therefore, good construct reliability.

Table 2: *Construct reliability*

Construct	Dijkstra-Henseler's rho (ρA)	Jöreskog's rho (ρC)	Cronbach's α
Institutional quality	0.8508	0.8311	0.8220

Moreover, a factor analysis (KMO=.872,p< .05) on the institutional quality construct revealed all but one indicator loaded onto one component. All these indicators expressed the extent to which an institutional aspect was perceived as an obstacle for business. The one indicator that loaded on the other component comprised the corruptness of the court system. These results contradict Barasa et al.'s (2017) operationalisation of institutional quality into corruption, regulatory quality and rule of law. Instead, the factor analysis showed the institutional quality construct comprises the subdimensions institutional obstacles for doing business and corruptness of the court system. Although these findings contradict the operationalisation of Barasa et al. (2017), this does not give reason to doubt the quality of the construct. In addition, the other construct reliability measures exhibited high construct reliability scores and, therefore, the institutional quality construct was not altered.

		Component	
		1	2
Corrupt1	The Court System Is Fair, Impartial And Uncorrupted		,947
Corrupt2	How Much Of An Obstacle: Corruption	,714	
RoL1	How Much Of An Obstacle: Courts	,643	
RoL2	How Much Of An Obstacle: Political Instability	,631	
RoL3	How Much Of An Obstacle: Crime, Theft And Disorder?	,538	
RQ1	How Much Of An Obstacle: Business Licensing And Permits	,768	
RQ2	How Much Of An Obstacle: Customs And Trade Regulations?	,626	
RQ3	How Much Of An Obstacle: Tax Rates	,760	
RQ4	How Much Of An Obstacle: Tax Administrations	,805	

Table 3: *Pattern matrix institutional quality*

Next, the indicator reliability is being evaluated. The indicator reliability is assessed with the help of the absolute standardised outer loadings and explains to what extent an indicator's variance can be explained by the latent construct (Götz, Liehr-Gobbers & Krafft, 2010). According to Churchill (1979) and Hulland (1999) one should consider to eliminate any indicator with an absolute standardized outer loading below 0.4. This would be the case for three indicators, namely Corrupt1 (0.0408), RQ2 (0.3048) and RoL3 (0.2737). Especially the indicator corrupt1 is a reason for concern. However, Henseler, Ringle and Sinkovics (2009) argue, because of PLS' characteristics of consistency at large, one should only eliminate an indicator if it the absolute standardised outer loading is below the 0.4 threshold and eliminating the indicator results in a substantial increase in construct reliability. If Corrupt1 were to be removed, the construct reliability scores would rise to $\rho A=0.851$, $\rho C=0.8463$ and $\alpha=0.8440$. Removing RoL3, too, would result in a decrease of the construct reliability compared to only removing Corrupt1, namely $\rho A=0.8459$, $\rho C=0.8424$ and $\alpha=0.8405$. Finally, eliminating RQ2 resulted in a further decrease of the construct reliability, i.e.$\rho A=0.8394$, $\rho C=0.8381$ and $\alpha=0.8374$. The elimination of these indicators were not regarded as substantial improvements to the construct reliability scores, since the increase was very marginal and the construct reliability scores were already well above the 0.7 threshold. For that reason, only one of the two requirements for indicator elimination by Henseler, Ringle and Sinkovics (2009) was met and, therefore, the three indicators did not have to be removed due to their elimination not resulting in a substantial increase in construct reliability.

Table 4: *Indicator reliability*

Indicator	R&D	Education	Exporting status	Ownership	Managerial experience	Skilled workforce	Process innovation	Product/service innovation	Annual sales growth	Capacity utilisation	Institutional quality
RnD	1.000										
Edu		1.000									
Exporting			1.000								
Ownership				1.000							
ManExp					1.000						
WorkSkill						1.000					
ProcessInno							1.000				
PSInno								1.000			
ASG									1.000		
CU										1.000	
RQ1											0.4820
RQ2											0.3048
RQ3											0.4432
RQ4											0.5254
Corrupt1											0.0408
Corrupt2											0.4140
RoL1											0.4323
RoL2											0.4044
RoL3											0.2737

Moving on to the next part of the outer model assessment, the convergent validity of a model examines whether a set of indicators all represent the same construct (Henseler, Ringle & Sinkovics, 2009). This can be demonstrated by testing a construct's unidimensionality with the Average Variance Extracted method (Henseler, Ringle & Sinkovics, 2009). However, this study consists of ten constructs with only one indicator for which a unidimensionality test irrelevant. Moreover, the only construct with multiple indicators, institutional quality, is by nature multidimensional, since it comprises corruption, rule of law and regulatory quality. For these reasons, it would not make sense to determine the construct's unidimensionality and, therefore, the convergent validity was not assessed in this study.

The last quality measure for the outer model is the discriminant validity. Discriminant validity represents the degree to which one construct's indicators are different from the other construct's indicators, i.e. when indicators are combined they are not unidimensional (Henseler, Ringle & Sinkovics, 2009). There are three methods to assess a model's discriminant validity, namely the Fornell-Larcker criterion, heterotrait-monotrait ratio of correlations (HTMT) and examining the cross loadings. The Fornell-Larcker Criterion is the least liberal discriminant validity test and assumes a construct shares more variance with the assigned indicators than with the indicators of any other construct (Hair et al., 2014; Henseler, Ringle & Sinkovics, 2009). None of the constructs shared more variance with another construct, indicating good discriminant validity. The results of the Fornell-Larcker Criterion are depicted in table 4.

Table 5: *Fornell-Larcker Criterion*

Construct	Process Innovation	Product/service Innovation	Education	Exporting	Ownership	Managerial Experience	Annual Sales Growth	R&D	Capacity Utilisation	Skilled Workforce	Institutional Quality
Process Innovation	1,0000										
Product Innovation	0,1397	1,0000									
Education	0,0031	0,0028	1,0000								
Exporting	0,0096	0,0065	0,0096	1,0000							
Ownership	0,0015	0,0006	0,0135	0,0503	1,0000						
Managerial experience	0,0007	0,0005	0,0109	0,0026	0,0000	1,0000					
Annual sales growth	0,0016	0,0006	0,0013	0,0002	0,0001	0,0002	1,0000				
R&D	0,1556	0,0992	0,0179	0,0207	0,0025	0,0000	0,0012	1,0000			
Capacity utilisation	0,0004	0,0005	0,0000	0,0003	0,0038	0,0171	0,0001	0,0004	1,0000		
Skilled workforce	0,0032	0,0021	0,0005	0,0001	0,0016	0,0130	0,0009	0,0004	0,0156	1,0000	
Institutional quality	0,0074	0,0117	0,0078	0,0019	0,0002	0,0070	0,0004	0,0127	0,0155	0,0032	0,3679

The heterotrait-monotrait ratio of correlations measures "the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)" (Henseler, Ringle and Sarstedt, 2015, p.121). Voorhees et al. (2016) postulate any HTMT score above 0.85 would indicate a violation of discriminant validity. Since no score came close to the 0.85 threshold, there is, again, no reason to doubt the model's discriminant validity.

Table 6: *HTMT ratio of correlations*

Construct	Process Innovation	Product/service Innovation	Education	Exporting	Ownership	Managerial Experience	Annual Sales Growth	R&D	Capacity Utilisation	Skilled Workforce	Institutional Quality
Process Innovation											
Product Innovation	0,3738										
Education	0,0560	0,0532									
Exporting	0,0982	0,0806	0,0978								
Ownership	0,0383	0,0249	0,1163	0,2243							
Managerial experience	0,0269	0,0216	0,1046	0,0512	0,0014						
Annual sales growth	0,0398	0,0240	0,0356	0,0141	0,0088	0,0130					
R&D	0,3944	0,3150	0,1337	0,1439	0,0504	0,0016	0,0344				
Capacity utilisation	0,0194	0,0232	0,0008	0,0172	0,0618	0,1309	0,0075	0,0210			
Skilled workforce	0,0569	0,0454	0,0230	0,0114	0,0401	0,1140	0,0295	0,0193	0,1250		
Institutional quality	0,0814	0,1039	0,0885	0,0419	0,0221	0,1030	0,0272	0,1033	0,1353	0,0679	

The last method the assess the model's discriminant validity is by examining all cross loadings. This showed all indicators loaded highest on the assigned construct.

Table 7: *Cross loadings*

Indicator	Process Innovation	Product/service Innovation	Education	Exporting	Ownership	Managerial Experience	Annual Sales Growth	R&D	Capacity Utilisation	Skilled Workforce	Institutional Quality
Ownership	0,0383	0,0249	0,1163	0,2243	1,0000	-0,0014	0,0088	0,0504	-0,0618	-0,0401	-0,0149
ManExp	-0,0269	0,0216	0,1046	0,0512	-0,0014	1,0000	-0,0130	0,0016	-0,1309	-0,1140	-0,0837
ASG	-0,0398	-0,0240	-0,0356	-0,0141	0,0088	-0,0130	1,0000	-0,0344	0,0075	0,0295	-0,0196
Exporting	0,0982	0,0806	0,0978	1,0000	0,2243	0,0512	-0,0141	0,1439	0,0172	0,0114	-0,0435
Edu	0,0560	0,0532	1,0000	0,0978	0,1163	0,1046	-0,0356	0,1337	0,0008	-0,0230	-0,0883
PSInno	0,3738	1,0000	0,0532	0,0806	0,0249	0,0216	-0,0240	0,3150	0,0232	-0,0454	-0,1082
ProcessInno	1,0000	0,3738	0,0560	0,0982	0,0383	-0,0269	-0,0398	0,3944	0,0194	-0,0569	-0,0858
RnD	0,3944	0,3150	0,1337	0,1439	0,0504	0,0016	-0,0344	1,0000	-0,0210	-0,0193	-0,1126
CU	0,0194	0,0232	0,0008	0,0172	-0,0618	-0,1309	0,0075	-0,0210	1,0000	0,1250	0,1244
RQ1	-0,0813	-0,0767	-0,1012	-0,0274	-0,0194	-0,0135	0,0074	-0,1129	0,0638	0,0190	0,6943
RQ2	-0,0661	-0,0989	-0,0820	-0,1267	-0,1018	-0,0421	-0,0305	-0,0695	0,0347	-0,0390	0,5521
RQ3	-0,0346	-0,0547	-0,0423	0,0133	0,0361	-0,0242	-0,0070	-0,0834	0,1236	0,0802	0,6657
RQ4	-0,0714	-0,0888	-0,0730	-0,0190	0,0153	-0,0448	0,0078	-0,0806	0,0772	0,0378	0,7248
Corrupt1	0,0236	0,0179	0,0088	0,0293	-0,0243	-0,1324	-0,0447	0,0468	0,0957	0,1100	0,2020
Corrupt2	-0,0750	-0,0779	0,0345	0,0003	0,0601	0,0120	0,0192	-0,1155	0,0534	0,0478	0,6435
RoL1	-0,0534	-0,0795	-0,0789	-0,0400	-0,0420	-0,0835	-0,0050	-0,0830	0,0899	0,0561	0,6575
RoL2	-0,0170	-0,0553	0,0018	-0,0404	0,0012	-0,1101	-0,0701	-0,0021	0,0772	0,0133	0,6280
RoL3	-0,0513	-0,0305	-0,1317	-0,0091	-0,0413	-0,1010	-0,0199	-0,0410	0,0934	0,0308	0,5231
WorkSkill	-0,0569	-0,0454	-0,0230	0,0114	-0,0401	-0,1140	0,0295	-0,0193	0,1250	1,0000	0,0564

Assessing the quality of the outer model overall, the construct reliability and the discriminant validity did not suggest any issues. The convergent validity was not assessed due to the many single-item constructs and the institutional quality construct being multidimensional by nature. The assessment of the absolute standardised cross loadings, however, did suggest issues regarding the indicator reliability. Although three indicators scored below the 0.4 threshold, the indicators were not eliminated due to the PLS' characteristics of consistency at large and eliminating these indicators did not result in a substantial increase in construct reliability. However, due to the poor indicator reliability the results of this study should be interpreted with care. Concluding, although the assessment of the indicator reliability did not provide satisfactory results, the study can still confidently proceed to the assessment of the inner model, because there was enough reason to not eliminate some indicators and two out of the three tests assessing the quality of the outer model did provide acceptable results.

4.3 Inner model

After the assessment of the outer model, the inner model will now be assessed. The assessment of the inner model will consist of hypotheses testing by evaluating the βs and according p values, the Cohen's f^2 and the R^2 of the endogenous latent variables.

The hypotheses testing revealed managerial experience did not directly affect a firm's product/service innovation output, but did negatively affect a firm's process innovation output (β= -0.038, p< .01). This direct effect was very weak (f^2=.002), since f^2=0.02, f^2=0.15 and f^2=0.35, respectively, indicate a weak, moderate and substantial effect size (Henseler, Ringle & Sinkovics, 2009). This significant effect was in an unhypothesised direction and will be further discussed in the next chapter. Institutional quality was found to moderate the effect of managerial experience on both a firm's product/service innovation output (β= -0.047, p< .01, f^2=.003)and process innovation (β= -0.036, p< .01, f^2=.002), again in indicating a very weak effect in an unhypothesised direction, too. The proportion of skilled workforce significantly, however very weakly, affected a firm's product/service innovation output (β= -0.030, p< .01, f^2=.001) and process innovation output (β= -0.045, p< .01, f^2=.002) in an unhypothesised direction. Institutional quality significantly moderated the effect of the proportion of skilled workforce on a firm's product/service innovation output (β= -0.051, p< .01, f^2=.003) and process innovation output (β= -0.049, p< .01, f^2=.003) in an unhypothesised direction of which the effects were very weak. The level of employee education did not affect a firm's product/service innovation output nor its process innovation output. Moreover, institutional

quality did not moderate the relationship between the level of employee education and process innovation, but did negatively and very weakly affect the relationship between the level of employee education and product/service innovation(β= -0.018, p< .05, f^2=.000). A firm's R&D activities do have a positive and weak effect on its product/service innovation output (β= 0.308, p< .01, f^2=.100) and a moderate effect on process innovation output (β= 0.361, p<.01, f^2=.163). The institutional quality did also weakly moderate the relationship between R&D activities and product/service innovation (β= 0.073, p< .01, f^2=.006), but did not moderate the relationship between R&D activities and process innovation. Having foreign ownership did not have any direct significant effect on both product/service and process innovation output nor did institutional quality significantly moderate any of these relationships. The exporting status of a firm, however, did have a very weak significant direct effect on product/service innovation output (β= 0.032, p< .01, f^2=.001) and process innovation output (β= 0.041, p< .01, f^2=.002). Institutional quality did not moderate the relationship between exporting status and product/service innovation, but did very weakly moderate the relationship between exporting status and process innovation (β= -0.035, p< .01, f^2=.001) in an unhypothesised direction.

Moving on to the effect of innovation on the performance outcomes, a firm's product/service innovation did not affect the annual sales growth, whereas a firm's process innovation output was found to significantly, albeit very weakly, affect the annual sales growth (β=-0.037, p<.01, f^2=.001) in an unhypothesised effect. Moreover, institutional quality did weakly moderate both the relationships of product/service innovation output (β=0.014, p<.10, f^2=.000) and process innovation output (β=0.031, p<.01, f^2=.001) on annual sales growth, albeit at different significance levels. Lastly, a firm's process innovation output did significantly, however very weakly, affect its capacity utilisation (β= 0.027, p<.01, f^2=.001) and this effect was weakly moderated by institutional quality (β= -0.091, p< .05, f^2=.008) in an unhypothesised direction.

The R^2 scores of the dependent variables all indicated a weak coefficient of determination, i.e. product/service innovation (R^2=0.118), process innovation (R^2=0.169), annual sales growth (R^2=0.004), capacity utilisation (R^2=0.022), which implies the model is not successfully explaining the endogenous latent variables (Chin, 1988; Henseler, Ringle & Sinkovics, 2009).

	Original Sa	Sample Mea	Standard Dev	T Statistic	P Values	F^2 Values
H1a: ManExp -> Product	0,009	0,009	0,008	1,113	0,266	
H1b: ManExp -> Process	-0,038	-0,038	0,008	4,689	0,000***	0.002
H2a: ManExp*IQ -> Product	-0,047	-0,049	0,007	6,937	0,000***	0.003
H2b: ManExp*IQ -> Process	-0,036	-0,039	0,007	5,082	0,000***	0.002
H3a: Skill -> Product	-0,030	-0,030	0,008	3,688	0,000***	0.001
H3b: Skill -> Process	-0,045	-0,045	0,008	5,390	0,000***	0.002
H4a: Skill*IQ -> Product	-0,053	-0,055	0,013	4,188	0,000***	0.003
H4b: Skill*IQ -> Process	-0,049	-0,052	0,012	4,035	0,000***	0.003
H5a: Education -> Product	0,004	0,004	0,008	0,480	0,632	
H5b: Education -> Process	0,003	0,003	0,009	0,405	0,686	
H6a: Education*IQ -> Product	-0,018	-0,023	0,008	2,391	0,017**	0.000
H6b: Education*IQ -> Process	-0,016	-0,022	0,012	1,378	0,169	
H7a: R&D -> Product	0,306	0,305	0,009	32,572	0,000***	0.100
H7b: R&D -> Process	0,381	0,380	0,009	44,107	0,000***	0.163
H8a: R&D*IQ -> Product	0,073	0,075	0,008	9,096	0,000***	0.006
H8b: R&D*IQ -> Process	0,009	0,002	0,007	1,186	0,236	
H9a: Foreign -> Product	0,002	0,002	0,009	0,241	0,810	
H9b: Foreign -> Process	-0,001	0,000	0,009	0,068	0,946	
H10a: Foreign*IQ -> Product	0,011	0,012	0,020	0,565	0,573	
H10b: Foreign*IQ -> Process	-0,026	-0,023	0,023	1,167	0,244	
H11a: Exporting -> Product	0,032	0,033	0,009	3,549	0,000***	0.001
H11b: Exporting -> Process	0,041	0,041	0,008	4,784	0,000***	0.002
H12a: Exporting*IQ -> Product	-0,027	-0,019	0,026	1,047	0,296	
H12b: Exporting*IQ -> Process	-0,035	-0,039	0,010	3,599	0,000***	0.001
H13a: Product -> ASG	-0,011	-0,011	0,009	1,290	0,198	
H13b: Process -> ASG	-0,037	-0,037	0,009	4,293	0,000***	0.001
H14a: Product*IQ -> ASG	0,014	0,019	0,008	1,683	0,093*	0.000
H14b: Process*IQ -> ASG	0,031	0,035	0,007	4,317	0,000***	0.001
H15: Process -> CU	0,027	0,028	0,009	3,103	0,002***	0.001
H16: Process*IQ -> CU	-0,091	-0,088	0,038	2,357	0,019**	0.008

* Significant at p<.10 ** Significant at p<.05 *** Significant at p<.01

Table 7: *Assessment inner model*

4.4 Additional analysis

The previous chapter revealed many effects were found to be significant in an unhypothesised direction and the R^2 values of the performance outcomes were extremely low. One explanation of these unexpected results might be that emerging markets cannot be studied all at once. More specifically, the differences in context of the emerging markets might create so much noise they cannot be properly analysed all at once. This thought is supported by Todtling and Trippl (2005) and Hoskisson et al. (2013) who argue emerging markets cannot be defined as a homogenous group. An additional analysis on India, Argentina and Indonesia was conducted to test if the differences in context did attribute to these unexpected results. India was selected because its institutional quality score is close to the average (mean = 65.27) representing the institutional quality of an average emerging market and had a large sample size (n=5454). Argentina represented an emerging market with low institutional

quality and its sample size was sufficiently large (N= 312). Indonesia was selected to represent emerging markets with high institutional quality and, again, its sample size was sufficiently large (N=650). Despite Thailand's higher score on institutional quality, Indonesia was chosen to represent emerging markets with high institutional quality, since Thailand's score was so high one might question it being a truly emerging market. First of all, the assessment of the outer models did not exhibit any substantial differences compared to the initial analysis.

Regarding the inner model of analysis on India, the R^2 values of product/service innovation (R^2=.152) and process innovation (R^2=.197) did experience an increase and thus the drivers were better able to explain the variance of these constructs. The R^2 of the annual sales growth remained the same (R^2=.004) and the R^2 of the capacity utilisation even decreased (R^2=.012). Regarding the path coefficients, some unhypothesised effects from the initial analysis became insignificant in the additional analysis, i.e. H2b, H3a, H3b and H6a. Moreover, other significant unhypothesised effect from the initial analysis were supported in the hypothesised direction in the additional analysis, i.e. H4b, H12b, H13b and H16. Furthermore, the employee's education became a significant driver of product/service innovation output (β= 0.040, p< .05, f^2=.002) and process innovation output (β= 0.105, p<.01, f^2=.012). On the contrary the moderating effect of institutional quality on the relationship between R&D activities and process innovation was initially insignificant, but supporting in an unhypothesised direction in the additional analysis (β=-0.110, p<.01, f^2=.014). Lastly, the path coefficient and effect sizes generally became larger in the additional analysis.

The assessment of the inner model of the analysis on Argentina revealed a severe increase in the R^2 scores of product innovation output (R^2=.198) and process innovation output (R^2=.353). The R^2 scores of the performance outcomes, however, remained low, i.e. annual sales growth (R^2=.022) and capacity utilisation (R^2=.006). Concerning the path coefficients, only H3b, H5b, H7a and H7b were significant. The proportion of a skilled workforce negatively affect the firm's process innovation output (β= -0.154, p<.01, f^2=.034) similar to the initial analysis' results, although the effect size now is substantially larger. The employee's education now negatively affected process innovation (β= 0.152, p<.05, f^2=.012), which was not supported in the initial analysis. Lastly, R&D activities still positively affected both the firm's product/service (β= 0.252, p< .01,f^2=.058) and process innovation output (β=0.302, p<.01, f^2=.104), albeit with smaller effect sizes. All other effects were not significant in this analysis.

The assessment of the inner model of the analysis on Indonesia displayed increased R^2 scores on all constructs. The scores of annual growth sales (R^2=.060) and capacity utilisation (R^2=.075) were still quite low, but the product innovation output (R^2=.147) and process innovation (R^2=.331) indicated the drivers were able to explain these variables. H2a, H2b, H4a, H4b, H8a, H12b, H14b and H16 were all supported in the initial analysis, but were not in the Indonesia only analysis. The effect of process innovation output was initially supported in the hypothesised direction, but the additional analysis on Indonesia found a significant effect in an unhypothesised direction (β= -0.252, p<.01, f^2=.067). In addition, the additional analysis on Indonesia confirmed the results of H3a, H3b, H7a, H7b, H11a, H11b and H13b in the initial analysis and even exhibited larger effect sizes. Lastly, the employee's education did significantly affect product/service innovation output (β= -0.107, p<.05, f^2=.011) and process innovation output (β= -0.212, p<.01, f^2=.056), whereas these were not supported in the initial analysis.The exact output of these three additional analyses can be found in Appendix B. The results of the additional analyses gave some insight into the debate whether emerging markets can be studied at all once or separately. The discussion chapter will elaborate on these results.

5. **Discussion**

The fifth chapter will discuss the previous chapter's statistical results and connect these to other literature. The study's research question basically comprises two parts, namely what the drivers of innovations are and how institutional quality affects this relationship and what the outcomes of innovation are and how institutional quality affects that relationship. The drivers of innovation and the moderating effect of institutional quality on these relationships will be discussed first. After the drivers, outcomes and the moderating effect of institutional quality have been inspected, the results of the additional analysis will be discussed.

Contrary to the findings of Custodio, Ferreira and Matos (2017), Shane (2000) and Acquaah (2012), managerial experience did not affect a firm's product/service innovation output and even negatively affected its process innovation output. A possible explanation of this unexpected result is raised by Fang, Chang and Chen (2011) and Sampson (2005) who argue experience fosters experience inertia and learning inertia, which are detrimental for organisational innovation. This would imply that a manager's past experiences actually prevent him or her from implementing innovations and thus have a negative effect on the firm's innovation output. The institutional quality negatively moderated this effect. Although this was in an unhypothesised direction, it does make more sense following the previously mentioned line of reasoning. The initially positive hypothesised moderating effect was developed based on the belief poor institutional quality consumes a manager's time and he or she could, therefore, spend less time on innovation activities (Utterback, 1971; Arundel & Kabla, 1998). However, if managerial experience is negatively affecting a firm's innovation output, poor institutional quality would consume a manager's time and could, therefore, decrease the initial detrimental effect of managerial experience on innovation output.

The proportion of skilled workforce also had a negative effect on a firm's innovation output, which contradicts the findings of Liu and Buck (2007), Pholphirul and Rukumnuaykit (2013) and Barasa et al. (2017). They argued a skilled workforce was better able to perform the technical and intellectual tasks required for innovation. Therefore, a negative effect of skilled workforce on innovation output seems very counterintuitive and is difficult to explain by scientific literature and will be further elaborated on in the limitations paragraph. Moreover, the institutional quality had a negative effect on the relationship between skilled workforce and product/service innovation. This indicates the product/service innovation output of skilled workers is actually increased in an environment with low institutional quality, while it decreases in an environment with high institutional quality. This implies low institutional

quality reduces the positive implications of low workforce skills on product/service innovation. Regarding the moderating effect between the skilled workforce and process innovation output, unskilled workers seemed to be better able to innovate the firm's processes in an environment with high institutional quality, while this institutional quality decreased the process innovation output of the skilled workers. The education of the employees did not affect the firm's product/service or process innovation output. Leiponen (2005) and Mol and Birkinshaw (2009) figured an employee's education would enhance its absorptive capacity, which is beneficial for the innovation output. An argument for this unexpected result raised by Van Uden, Knoben and Vermeulen (2017) who also studied the direct effect of the proportion of employees with a secondary school degree on a firm's innovation output in emerging markets. They found no support of an employee's education positively affecting innovation output and argued this can be explained by firm-specific practices enhancing innovation in emerging markets, opposed to a more general educational attainment (Van Uden, Knoben & Vermeulen, 2017). This implies a secondary education degree in emerging markets would not lead to improved product/service or process innovation output, since the attained knowledge is not specific to the job. Moreover, the significant negative moderating effect suggests an education does not help employees to innovate any products or services in an environment with high institutional quality.

A firm's R&D activities did positively affect a firm's product/service innovation output as suggested by Romijn and Albaladejo (2002) and Freel (2003). In addition, the firm's R&D activities also positively affected the process innovation output confirming the findings of Cohen and Klepper (1996) and Freel (2003). Moreover, R&D activities were the strongest driver of both product/service and process innovation output. Institutional quality did enhance the effect of R&D activities on product/service innovation as Zhao (2006) and Back et al. (2014) did suggest. On the other hand, institutional quality had no effect on the relationship between R&D activities and process innovation. Moreover, none of the hypotheses regarding the effect of foreign ownership were supported in this study. This contradicts Wu et al. (2016) who argued firms with foreign ownership have access to a diverse set of knowledge and resources, which are expected to be shared by their foreign owner. In order to better understand the non-significant result it would be relevant to know the foreign owner's country of origin, since firm specific advantages of developed market firms are typically based oninternal effects (Makino, Isobe & Chan, 2004). However, the performance of emerging market subsidiaries benefits most from external effect and, therefore, foreign owners from

developed countries might not transfer the proper set of knowledge and resources to their emerging market subsidiary (Makino, Isobe & Chan, 2004). Distinguishing between foreign owners based on their types of country of origin can help to interpret the effect of foreign ownership on a firm's product/service and process innovation output. Unfortunately, the World Bank Enterprise Survey does not encompass such data, hence the distinction cannot be made in this study. On the other hand, exporting status does positively affect both a firm's product/service and process innovation output. Thus, doing business in foreign markets does result in an advantage over domestically operating firms. This matches the arguments of Salomon & Shaver (2005). The fact that exporting firms do profit from their international activities whereas foreign owned firms do not, implies only the firms operating in foreign markets improve their innovation output and its subsidiaries do not. In addition, institutional quality did not moderate the relationship between exporting status and product/service innovation. It did, however, negatively moderate the relationship between exporting status and process innovation. Rao (2013) argues process innovations are difficult to replicate and, therefore, need less legal protection. Thus product/service innovation output benefits more from high institutional quality, since product/service innovations are easier to replicate. Process innovation, on the other hand, is less likely to be imitated at low levels of institutional quality. The negative moderation effect of institutional quality is, therefore, stronger for process innovation output than for product/service innovation output, resulting in a significant moderation effect on process innovation output and an insignificant moderation effect on product/service innovation output. This effect might be more relevant in the case of exporting status, since the knowledge for these types of innovation originates from another market and thus is more exotic. The negative moderation effect indicates the positive effect on process innovation output of exporting firms over non-exporting firms diminishes at high levels of institutional quality. Luo and Tung (2007) provide a possible explanation by arguing firms in emerging markets export to overcome local institutional constraints. Thus, in an environment with low institutional quality exporting firms benefit more from their exporting activities, since they mitigate the institutional constraints, which gives them an advantage over non-exporting firms. In an environment with high institutional quality this effect does not occur.

The second part of the research question involves the relationship between firm innovation output and the performance outcomes and how institutional quality moderates it. First of all, a firm's product/service innovation output did not affect the annual sales growth, very weakly affected annual sales growth when moderated by institutional quality and the process

innovation output even negatively affected the annual sales growth. Since the average annual sales growth was 18.4%, the non-significant, very weak and negative effects are surprising. This is underlined by the R^2 of the annual sales growth construct of just 0.004, indicating the model is not able to explain almost any of its variance. This problem will be a topic in both the limitations and further research section since literature does suggest an effect on annual sales growth and this study largely failed to find this relationship, which implies the model is flawed. The firm's process innovation output was found to positively affect its capacity utilisation as suggested by many other studies (Griffith et al., 2006; Huergo & Jaumandreu, 2004; Laforet, 2013; Nightingale et al., 2003). However, the explained variance of the construct was, again, very low (R^2=.022) indicating a firm's process innovation did not do well as a driver of capacity utilisation. This, too, will be addressed in the limitations and further research section of the study. Lastly, institutional quality did moderate the relationship between process innovation output and capacity utilisation in an unhypothesised direction. The negative effect of institutional quality may seem odd, but could be explained by the fact that process innovation is focussed on internal affairs (Nightingale et al., 2003). Because of their internal focus, firms with higher levels of process innovation output might be less bothered by an institutionally poor environment giving them an advantage over companies with less process innovation output. In environment with high institutional quality, however, this advantage ceases to exist.

The additional analyses assessed the quality of the model in India, Indonesia and Argentina separately instead of the twenty-two emerging markets all together. The rationale behind this stemmed from Todtling and Trippl (2005) and Hoskisson et al. (2013) who argued emerging markets are not a homogeneous group and can, therefore, not be lumped together. The additional analysis' inner models exhibited mixed results regarding the hypotheses, but generally larger effect sizes. Although the performance outcomes still displayed extremely low R^2 scores in the India and Indonesia analyses, the drivers of innovation output were able to explain more of the innovation constructs' variance. Thus the model seemed to better fit the individual markets than all emerging markets together, even though the model was based on emerging market studies in general and not specially on the Indian, Indonesian or Argentinean context. This does suggest combining all emerging markets into one analysis results in a biased representation due to different contexts causing noise. The only effect that was supported in every analysis was the positive effect of R&D activities on product/service and process innovation. The effect of managerial experience on product/service innovation,

foreign ownership on product/service and process innovation, product innovation output on annual sales growth, the moderation effect of institutional quality on the relationship between foreign ownership and process innovation and on the relationship between product/service innovation output on annual sales were insignificant in every analysis. All other results always contradict each other, in that the hypotheses are not always supported or are even supported in opposing directions. The additional analysis on India exhibited mostly logical and hypothesised effects, whereas the additional analyses on Indonesia and Argentina did not. This inconsistency of the model confirms the belief a model cannot be used for emerging markets in general and should be tailored to the local context of each market. This is nicely demonstrated by an employee's education not having an effect on innovation output in the initial study, having one of the strongest negative effects in the analysis on Indonesia and Argentina, but on the other hand having one of the strongest positive effects in the study on India. The importance of the specific environment is underlined by Porter and Stern (2001) who claim the educational system in Argentina is isolated from the industry and, therefore, lowers their innovation output. In addition, Permani (2009) finds the Indonesian secondary and tertiary education system are not economically relevant and, for that reason, do not effectively enhance the innovation in the market. On the other hand, investments in India's educational system improve the innovation output. These findings imply the educational system is hard to compare across multiple emerging markets, hence the effect of an employee attaining a secondary school degree should only be studied within one context only. Concluding, the additional analyses suggest the contexts of emerging markets are in such a way different from each other they should not be studied as being one homogenous group. Moreover, the additional analyses yielded very dissimilar results, which implies the model cannot be applied for studying every emerging market individually, let alone for studying emerging markets as one large group. Since the results of an emerging markets study can be the outcome of opposing effects in individual markets, findings of studies on emerging markets as a large group can lead to hard to interpret results.

6. Conclusion

The sixth and final chapter will start with the study's conclusion. After the conclusion, the practical and scientific implications of this study are addressed. Finally, some suggestions for further research will be presented and the limitations of this study will be discussed.

6.1 Conclusion

The aim of this study was to gain a better understanding of emerging markets, since these pose great business opportunities and are understudied compared to developed markets (Iyer, LaPlaca & Sharma, 2006; Kearney, 2012; London & Hart, 2004; Luo & Tung, 2007). Studying emerging markets at a whole would be too broad, hence the study focussed on innovation in emerging markets. A focus on innovation in emerging markets is especially relevant, since it is considered to drive economic growth (Hipkin & Bennett, 2003; Robson et al., 2009). Therefore, the framework of Barasa et al. (2017), who found institutional quality moderates the effect of firm capabilities on innovation output in three East-African countries, was adapted to provide a more extended model of innovation in emerging markets all over the world. The newly suggested model included two extra drivers of innovation output, two performance outcome variables and made a distinction between process and product/service innovation output. Institutional quality was expected to positively moderate each relationship in this model. These adjustments would be better able to grasp the innovation framework of emerging markets in general. These suggestions were summarised in the study's research question, which stated: *What are the drivers and outcomes of innovation in emerging markets and how does institutional quality affect these relationships?*

First, the supposed drivers of innovation output comprised managerial experience, proportion of skilled workforce, the employee level of education, a firm's R&D activities, foreign ownership and a firm's exporting status. The analysis revealed most of these drivers actually had a negative effect on a firm's innovation output. Only firms that engaged in R&D activities or were exporting exhibited higher levels of both product/service and process innovation. The institutional quality actually had a detrimental effect on many of the direct effects, which indicates low levels of institutional quality would lead to more innovation output. An institutionally well-developed environment only enhanced the product/service innovation output of firms engaging in R&D activities. While other literature suggested these drivers improved a firm's innovation output, this study finds most of these drivers do not or even negatively affect the firm's innovation output. This emphasises the important role institutional quality plays in emerging markets, since it can affect several business activities in unexpected

manners. In addition, these findings shed a new light on how firm innovation can be increased and suggest one should critically reflect on this process. Moreover, the belief that institutional quality only increases the innovation output in emerging markets has been challenged as well.

Second, this study also included performance outcomes, namely a firm's annual sales growth and its capacity utilisation. A firm's product/service and process innovation output were expected to enhance these performance outcomes and institutional quality was predicted to positively affect these relationships. The analysis revealed a firm's product/service innovation output did not affect the annual sales growth and a country's institutional quality only had a very marginal effect on this relationship. Firms that innovated their processes exhibited less annual sales growth, but higher capacity utilisation. If these firms operated in an institutionally developed environment, their annual sales growth would increase, whereas its capacity utilisation would decline. Analysing the effect of innovation output on some performance outcomes proved including these outcomes does makes sense, since these are not always affected in a logical direction. Moreover, it demonstrated a country's institutional quality can have a positive and negative moderating effect at the same time and should, therefore, be taken into account when studying the effect of innovation on business performance outcomes in emerging markets.

Third, the initial analysis yielded some unexpected and hard to explain results. This, in combination with the arguments of Todtling and Trippl (2005) and Hoskisson et al. (2013), gave reason to believe one should not regard emerging markets as one large group and analyse them as such. Instead, an emerging market should be analysed on its own within its own context. For that reason, three additional analyses on three emerging markets were conducted, i.e. Argentina, India and Indonesia. The results of the analysis on the Indian market more closely resembled the initial hypotheses, displayed more logical effects and had larger effect sizes, whereas the other two posed even more contradicting effect with larger effect sizes and R^2 scores. This led to believe that emerging markets, indeed, should not be studied as being one group and one should pay attention to each country's context when comparing emerging markets. Consequently, the suggested model is not able to explain the innovation framework of all emerging market firms. However, it can be used to analyse the innovation of firms in just one individual emerging market if the model has been adapted to the specific local market conditions.

All in all, the additional raised a concern regarding the model's ability to examine the innovation framework in all emerging markets. For that reason, the results of the initial analyses should be carefully interpreted and, as a consequence, the research question cannot be answered. However, this research did yield an insightful result regarding emerging market studies. The main takeaway was emerging markets are not a homogeneous group which can be studied at large, since this disregards the context of each market. Instead, one should develop a specific model based on the emerging market's context and then compare it to other emerging markets, which will contribute to the knowledge on these rapidly growing and considerably attractive markets.

6.2 Practical & scientific implications

The study's practical implications will be discussed first. The practical implications can be divided into two, namely the managerial implications and the implications for government officials and others with influence on a nation's institutional context. First of all, the study shows managers operating in emerging markets have the best chance of innovating their products/services or processes if they engage in R&D activities. R&D activities had the largest positive effect on innovation output. However, only an increase in process innovation output would result in more annual sales and higher capacity utilisation. Moreover, a manager should not be discouraged by an institutionally poor quality market, since the effects of managerial experience and employee level of education on product/service innovation are strengthened in an environment with low institutional quality. However, the most important managerial implication is that managers should be aware of the institutional context their firm is operating in. The environment's level of institutional quality a manager is acting in can affect the outcome of the firm's actions in either a positive or negative way. This study provided an indication of what managers in emerging markets can expect of institutional quality's moderating effect. However, this study also found emerging markets are inherently different and, therefore, managers should pay attention when implementing ideas originating from other contexts.

The study's results produce some implications for government officials too. Since government officials can shape a market's institutional environment, it makes sense to include the study's implications on government officials as well. The most straightforward implication for government officials would be to improve the institutional quality. However, this study found lower levels of institutional quality can be more advantageous for emerging markets firms than higher levels of institutional quality. Therefore, government officials

should not strive to simply improve the institutional quality, but find out what causes low institutional quality to enhance some business activities. Although institutional quality is considered to be something an emerging market should aim for, it would become a more desirable goal if it also helped the market's business activities. Furthermore, government officials should be cautious when implementing institutional changes based on examples from other markets, since these could not work in another market's environment. What might be very effective in emerging market A is not necessarily effective in emerging market B. Therefore, government officials should always consider and reflect on the context of their own market when implementing new policies or other institutional adjustments. Being aware of differences between emerging markets is also one of the key implications for the science on emerging markets and will be discussed next.

The most important scientific implication is researches should be wary of merged data sets of multiple emerging markets. Analysing multiple emerging markets at once disregards the relevance of the local context. A researcher should be aware of these contexts and assess the effect different contexts might have on the study's results. A good way to do this would be an additional qualitative research or making use of regional quantitative data on the institutional quality, since these help to better understand the exact environment of the study's subject. Another implication for new scientific studies on emerging markets would be to acknowledge institutional quality can have both a positive and negative effect. This study found institutional quality can have a positive or negative effect on business activities and, therefore, researchers should examine both possibilities when postulating their hypotheses. For instance, Ayyagari et al. (2010) found firms in emerging markets might also need bribes to innovate, Puri, Tavoletti and Cerruti (2015) argue low institutional quality is actually conducive for innovation by resource-poor entrepreneurs in emerging markets and Khanna and Palepu (2004) suggest institutional voids can function as a business opportunity for emerging market firms if they manage to alleviate them. These implications require researchers to acknowledge low institutional quality might also have its perks in emerging markets and, therefore, researchers should approach a study on emerging markets different from a study on developed markets.

6.3 Suggestions further research

Besides the aforementioned scientific implications, this study can also contribute to the scientific literature by providing some suggestions for further research. First of all, this study found institutional quality can have a detrimental effect on business activities. Future research

should delve into the positive effects of poor institutional quality, in accordance with Ayyagari et al. (2010), Puri, Tavoletti and Cerruti (2015) and Khanna and Palepu (2004). Not only does it provide insight into a counterintuitive effect, understanding how high institutional quality can be detrimental for business activities could also prevent the unwanted effect from happening.

Furthermore, the low R^2 scores indicated a firm's annual sales growth and capacity utilisation are unfit performance outcomes for measuring the effect of innovation output. Other researchers should examine what can be enhanced by innovation output, since innovating would be meaningless if it did not contribute to a firm's performance. Providing an overview of multiple substantial performance outcomes would emphasize the relevance of innovation and encourage firms in emerging markets to innovate. Finally, a combination of qualitative and quantitative research methods can increase the knowledge on emerging market environments.

A qualitative study should provide deeper insights into the exact proceedings of firms in emerging markets. Not only would it provide more rich information of emerging market firms, it also helps to identify specific characteristics of each emerging market's context. As a result, the body of knowledge on how emerging markets differ would be extended and what the effect of these differences are for emerging market studies. Based on these qualitative insights a model can be developed to assess the innovation framework of a specific emerging market. Besides a qualitative study, a quantitative study can test the qualitative results on a larger scale, such as a qualitatively developed model. The quantitative section would preferably consist of first hand data, instead of data retrieved from an external database. Working with an external database makes the researcher dependent on and limits him or her to the available indicators, which might not be able to grasp the entire context of the firm. For instance, the database did not include the market growth, cultural aspects, investments and subsidies, the exact educational attainment of the employees, the countries to which firms exported or the foreign owners' country of origin, which could all have implications for a firm's innovation processes. Therefore, a future research should collect its own data, because it enables the researcher to study the environment of the firm to the extent he or she deems relevant and can be based on the earlier qualitative findings. More specifically, a combination of qualitative and quantitative research could examine whether the inability to study multiple emerging markets at once can be explained by, for instance, economic, cultural or institutional

differences. A particular study would contribute to literature comparing emerging markets instead of comparing emerging and developed markets.

6.4 Limitations

The study did contain multiple limitations. This paragraph will attend those limitations, which arose in several parts of the study. The first notable limitation involved the different outcomes of the analysis on all emerging markets at once and the individual market analyses. This implies the suggested model is flawed, since the results of the combined analysis and the individual analyses presented contradicting directions on most of the relationships. Moreover, some of the significant effects seemed very counterintuitive and are hard to explain by available literature, which, again, implies the model is deficient. The inadequacy of the model is illustrated by some low indicator reliability scores. Although there was enough reason not to remove these from the model, these particular indicators might have hampered the model's abilities to some degree. Furthermore, the extremely low R^2 scores of the performance indicated the innovation output was not able to explain the annual growth sales of a firm nor its capacity utilisation. All in all, the model appeared to be unable to sufficiently explain the innovation framework in emerging markets, when the emerging markets were studied all at once, and it led to contradicting results in the additional analyses. Moreover, it is not entirely clear if the inadequacy of the model stemmed from a statistical failure or theoretical misperceptions. This leads to the study's next limitation, namely the lack of any qualitative research.

A qualitative study could have helped in the development of a sound theoretical model. Not only would the theoretical model have been better, a qualitative study can also provide more and deeper insights into how and why some effects occur. In addition, a qualitative study would have erased some of the confusion regarding the model, since it could identify whether the model's deficiencies emanate from a statistical failure or a theoretical misperception, such as the model being based on studies on several different emerging market studies, instead of results on one particular market. For these reasons, an additional qualitative study would have helped to decrease the impact of some other limitations and, therefore, the absence of a qualitative study can be regarded as a limitation in itself. Lastly, retrieving the data from the ES database limited the study's options. First of all, the ES database restricted the development of the model to specific available indicators. Not only did this confine the choice for the performance outcomes, it also decreases the options for extra contextual variables. Because of the limited choice of indicators, the model missed out on some possibly

interesting variables, such as market growth, cultural aspects, investments and subsidies, the exact educational attainment of the employees, the countries to which firms exported or the foreign owners' country of origin for example. In addition, many datasets of emerging markets did not contain all indicators required for the model. As a result, several markets could not be included in the analysis. Although it turned out analysing multiple emerging markets at once does lead to misguided results, it eliminates the option to compare individual emerging markets like the additional analyses on Argentina, India and Indonesia. For these reasons, the adoption of the ES database limited both the choice of variables in the model and markets to be included in the analysis.

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8.1 Appendix A

Emerging markets identified by Hoskisson et al. (2013): Bangladesh, Cote d'Ivoire, Kenya, Kyrgyzstan, Nigeria, Pakistan, Philippines, Venezuela, Croatia, Czech Republic, Greece, Hungary, South-Korea, Lithuania, Russia, Slovakia,Slovenia, Thailand, Trinidad and Tobago, Turkey, Argentina, Armenia,Bulgaria, Colombia, Ecuador, Jamaica,Kazakhstan,Macedonia, Mexico, Moldova, Peru, Romania, Ukraine, Albania, Azerbaijan, Botswana, Brazil, Egypt,Georgia, Ghana, India, Indonesia, Jordan, Latvia, Morocco, Poland, South-Africa, SriLanka, Tajikistan, Chile, China, Estonia, Israel, Malaysia, Mauritius, Portugal, Saudi-Arabia, Taiwan and Tunisia.

Emerging markets included in the study: Bangladesh, Cote d'Ivoire, Kenya,Nigeria, Pakistan, Philippines, Venezuela, Thailand, Trinidad and Tobago, Argentina, Colombia, Ecuador, Jamaica, Mexico, Peru, Egypt, Ghana, India, Indonesia, Sri Lanka, Malaysia.

Emerging markets excluded from the study: Kyrgyzstan, Croatia, Czech Republic, Greece, Hungary, South-Korea, Lithuania, Russia, Slovakia, Slovenia, Turkey, Armenia, Bulgaria, Kazakhstan, Macedonia, Moldova, Romania, Albania, Azerbaijan, Botswana, Brazil, Georgia, Jordan, Latvia, Morocco, Poland, South-Africa, Tajikistan, China, Estonia, Israel, Mauritius, Portugal, Saudi-Arabia, Taiwan and Tunisia.

8.2 Appendix B

India	Original S	Sample M	Standard Dev	T Statistic	P Values	F^2 Values
ManExp -> Product Innovation	-0,005	-0,007	0,013	0,374	0,709	
ManExp -> Process Innovation	-0,040	-0,039	0,012	3,314	0,001***	0.002
ManExp*IQ -> Product Innovation	-0,079	-0,084	0,011	7,320	0,000***	0.008
ManExp*IQ -> Process Innovation	-0,001	-0,002	0,023	0,033	0,974	
Skill -> Product Innovation	0,026	0,027	0,015	1,793	0,076*	0.001
Skill -> Process Innovation	-0,005	-0,002	0,015	0,314	0,754	
Skill*IQ -> Product Innovation	-0,084	-0,086	0,011	7,282	0,000***	0.008
Skill*IQ -> Process Innovation	0,040	0,044	0,011	3,482	0,000***	0.002
Education -> Product Innovation	0,040	0,038	0,015	2,584	0,011**	0.002
Education -> Process Innovation	0,105	0,102	0,014	7,355	0,000***	0.012
Education*IQ -> Product Innovation	0,055	0,050	0,034	1,613	0,110	
Education*IQ -> Process Innovation	-0,155	-0,127	0,068	2,256	0,026**	0.004
R&D -> Product Innovation	0,318	0,316	0,014	22,645	0,000***	0.105
R&D -> Process Innovation	0,353	0,353	0,013	27,736	0,000***	0.135
R&D*IQ -> Product Innovation	0,124	0,126	0,013	9,583	0,000***	0.016
R&D*IQ -> Process Innovation	-0,110	-0,108	0,012	9,508	0,000***	0.014
Foreign -> Product Innovation	-0,008	-0,009	0,011	0,788	0,433	
Foreign -> Process Innovation	0,004	0,005	0,012	0,318	0,751	
Foreign*IQ -> Product Innovation	0,036	0,041	0,009	4,185	0,000***	0.002
Foreign*IQ -> Process Innovation	-0,031	-0,009	0,032	0,971	0,334	
Exporting -> Product Innovation	0,030	0,029	0,013	2,296	0,024**	0.001
Exporting -> Process Innovation	0,019	0,019	0,010	1,948	0,054*	0.001
Exporting*IQ -> Product Innovation	0,017	0,022	0,026	0,656	0,513	
Exporting*IQ -> Process Innovation	0,211	0,183	0,064	3,290	0,001***	0.008
Product Innovation -> ASG	-0,015	-0,013	0,015	0,989	0,325	
Process Innovation -> ASG	0,036	0,036	0,015	2,459	0,016**	0.001
Product*IQ -> ASG	0,028	0,006	0,040	0,698	0,487	
Process*IQ -> ASG	0,036	0,032	0,036	1,008	0,316	
Process Innovation -> CU	0,068	0,066	0,014	4,788	0,000***	0.005
Process*IQ -> CU	0,078	0,086	0,010	7,706	0,000***	0.006

* Significant at p<.10 ** Significant at p<.05 *** Significant at p<.01

Argentina	Original S	Sample M	Standard I	T Statistic	P Values	F^2 Values
ManExp -> Product innovation	0,041	0,040	0,057	0,715	0,475	
ManExp -> Process innovation	0,017	0,014	0,049	0,342	0,732	
ManExp*IQ -> Product innovation	-0,089	-0,063	0,155	0,575	0,565	
ManExp*IQ -> Process innovation	0,198	0,089	0,158	1,251	0,212	
Skill -> Product innovation	-0,072	-0,067	0,051	1,415	0,158	
Skill -> Process innovation	-0,154	-0,138	0,046	3,325	0,000***	0.034
Skill*IQ -> Product innovation	-0,187	-0,148	0,178	1,053	0,293	
Skill*IQ -> Process innovation	0,051	0,019	0,098	0,525	0,600	
Education -> Product innovation	-0,016	-0,026	0,057	0,288	0,774	
Education -> Process innovation	-0,153	-0,155	0,053	2,911	0,004**	0.012
Education*IQ -> Product innovation	-0,106	-0,018	0,143	0,740	0,460	
Education*IQ -> Process innovation	0,005	-0,016	0,082	0,065	0,948	
R&D -> Product innovation	0,252	0,245	0,063	3,993	0,000***	0.058
R&D -> Process innovation	0,302	0,302	0,061	4,939	0,000***	0.104
R&D*IQ -> Product innovation	0,061	0,019	0,099	0,618	0,537	
R&D*IQ -> Process innovation	0,033	-0,014	0,066	0,498	0,619	
Foreign -> Product innovation	-0,001	0,011	0,192	0,005	0,996	
Foreign -> Process innovation	-0,041	-0,002	0,086	0,478	0,633	
Foreign*IQ -> Product innovation	0,104	0,079	0,256	0,405	0,685	
Foreign*IQ -> Process innovation	-0,119	-0,024	0,129	0,927	0,355	
Exporting -> Product innovation	-0,050	-0,037	0,055	0,914	0,361	
Exporting -> Process innovation	0,024	0,028	0,052	0,460	0,646	
Exporting*IQ -> Product innovation	-0,137	-0,080	0,131	1,049	0,295	
Exporting*IQ -> Process innovation	-0,084	-0,031	0,122	0,686	0,493	
Product innovation-> ASG	0,072	0,072	0,076	0,948	0,343	
Process innovation-> ASG	-0,056	-0,042	0,053	1,050	0,294	
Product*IQ -> ASG	-0,064	-0,026	0,074	0,869	0,386	
Process*IQ -> ASG	-0,048	-0,046	0,079	0,604	0,546	
Process innovation-> CU	-0,015	-0,011	0,070	0,214	0,830	
Process*IQ -> CU	0,103	0,057	0,152	0,682	0,495	

* Significant at p<.10 ** Significant at p<.05 *** Significant at p<.01

Indonesia	Original S	Sample M	Standard Dev	T Statistic	P Values	F^2 Values
ManExp -> Product innovation	0,027	0,029	0,033	0,830	0,407	
ManExp -> Process innovation	-0,062	-0,062	0,032	1,939	0,053*	0.006
ManExp*IQ -> Product innovation	0,030	0,011	0,046	0,657	0,511	
ManExp*IQ -> Process innovation	0,003	-0,010	0,035	0,086	0,932	
Skill -> Product innovation	-0,104	-0,091	0,052	2,008	0,045**	0.011
Skill -> Process innovation	-0,128	-0,126	0,042	3,043	0,002***	0.056
Skill*IQ -> Product innovation	0,040	0,051	0,048	0,840	0,401	
Skill*IQ -> Process innovation	0,030	0,023	0,041	0,742	0,458	
Education -> Product innovation	-0,107	-0,098	0,042	2,550	0,011**	0.002
Education -> Process innovation	-0,212	-0,208	0,042	5,109	0,000***	0.012
Education*IQ -> Product innovation	-0,013	0,001	0,049	0,258	0,796	
Education*IQ -> Process innovation	-0,024	-0,016	0,051	0,468	0,640	
R&D -> Product innovation	0,156	0,170	0,070	2,220	0,027**	0.020
R&D -> Process innovation	0,318	0,334	0,072	4,424	0,000***	0.105
R&D*IQ -> Product innovation	0,104	0,081	0,111	0,939	0,348	
R&D*IQ -> Process innovation	-0,013	-0,002	0,114	0,112	0,911	
Foreign -> Product innovation	0,035	0,027	0,056	0,623	0,534	
Foreign -> Process innovation	0,102	0,091	0,058	1,757	0,080*	0.011
Foreign*IQ -> Product innovation	-0,032	-0,023	0,061	0,519	0,604	
Foreign*IQ -> Process innovation	0,079	0,028	0,095	0,831	0,406	
Exporting -> Product innovation	0,173	0,168	0,054	3,197	0,001***	0.025
Exporting -> Process innovation	0,130	0,126	0,052	2,520	0,012**	0.018
Exporting*IQ -> Product innovation	-0,002	-0,001	0,073	0,030	0,976	
Exporting*IQ -> Process innovation	-0,015	-0,021	0,064	0,235	0,814	
Product innovation-> ASG	-0,005	0,000	0,036	0,137	0,891	
Process innovation-> ASG	-0,112	-0,110	0,025	4,441	0,000***	0.010
Product*IQ -> ASG	0,100	0,053	0,080	1,246	0,213	
Process*IQ -> ASG	0,065	0,033	0,074	0,882	0,378	
Process innovation-> CU	-0,252	-0,260	0,045	5,609	0,000***	0.067
Process*IQ -> CU	-0,084	-0,054	0,078	1,077	0,282	

* Significant at p<.10 ** Significant at p<.05 *** Significant at p<.01