A development bank choice of private equity partner: A behavioural game theoretic approach

FAIRCHILD, Richard, IAN, Crawford and ELFAKIR, Adil <http://orcid.org/0000-0002-0922-7274>

A Development Bank's Choice of Private Equity partner: A Behavioral Game-theoretic Approach[1]

Richard Fairchild [a], Ian Crawford [a], Adil El-Fakir [b]

[a] School of Management, University of Bath, Bath, UK
[b] Sheffield Hallam University, Sheffield, UK

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Abstract

We develop a formal game-theoretic analysis of the economic (value-adding abilities) and behavioural factors (empathy, emotional excitement, passion) affecting a development bank's choice of private-equity partner when investing into emerging market entrepreneurship. Triple-sided moral hazard (TSMH) problems occur in the form of effort-shirking, since the bank, the PE-manager, and the entrepreneur all contribute to value-creation. The bank's investment choices are crucially affected by a) the relative abilities and the potential level of empathy, excitement and passion that may be generated between a PE-manager and an entrepreneur, and b) the personal emotional attachment that the bank develops towards a PE. The severity of TSMH increases inefficiencies in decision-making. Finally, we consider, in addition to political risk mitigation, an additional impact that the bank may have on PE/E value-creation: the bank may have a coaching/mentoring role. Our analysis has implications for academics and practitioners alike.

[1] In writing this paper, the authors have benefitted enormously from discussions with European Bank for Reconstruction and Development (EBRD) managers, who have sense-checked our analysis, and provided invaluable discussions and input.

1. Introduction

Entrepreneurial activity is a major source of global innovation, employment creation and economic growth. However, since such activity may be inherently risky and uncertain, in particular for small and medium sized enterprises (SMEs), entrepreneurs often face difficulties obtaining finance through traditional channels, such as banks or the stock market. Venture capital (VCs) and private equity funds (PEs) often fill this 'equity-gap' by specialising in direct equity financing of innovative entrepreneurial activity. Furthermore, in contrast to traditional financiers, VCs and PE-managers tend to provide more than just finance. They also provide value-adding capabilities. Scholars have recognised that this may result in *double-sided moral hazard problems*, as entrepreneurs and investors may face conflicts from each other over value-creation and venture direction.

A recent phenomenon is the increase in entrepreneurial activity in developing/emerging economies. As in developed economies, start-up activity is often financed by private equity and venture capital. Furthermore, as in the developed economies, the performance of private equity/venture capital financed early stage companies and SMEs may be seriously hindered by severe moral hazard and information-based problems. These problems are exacerbated for investors in private equity and venture capital funds in emerging markets by the relative absence of robust signals of quality such as a private equity investment track record and reputation due to the relatively young nature of the industry in these markets, and are further exacerbated by weak governance systems and institutions. Furthermore, investment into these economies is often subject to severe political risk.

In response to these impediments to growth, development banks (DBs) have emerged as major players in the financing of entrepreneurial activity in developing markets. However, rather than financing entrepreneurs in developing countries directly, DBs often invest into

entrepreneurial ventures through local or regional financial intermediaries, such as venture capital or private equity funds.

As Settel et al (2009) note: "The emerging markets private equity industry has grown significantly over the past decade. Indeed, the eight largest multilateral development finance institutions (MDFIs) have committed more than $12.5 billion to private equity."

The European Bank for Reconstruction and Development (EBRD), in their recent report (2016), note that: "The rise of private equity activity in the region reflects the rapid economic growth seen in the early 2000s…. indeed, total investment by private equity firms in emerging markets worldwide stood at US$35billion in 2014, a five-fold increase on the US $7billion that was recorded in 2004."

The EBRD report argues that: "there is significant potential for further leveraging the economic value created by private equity funds in terms of employment and output growth."

To date, there has been little academic research (either theoretically or empirically) into the role of development banks, their involvement with private-equity partners, and the effects on entrepreneurial incentives and performance. Indeed, as noted by Settel et al (2009):

"While a large number of articles review the growth, evolution, and performance of the private equity industry in emerging markets, we are unaware of any study that has systematically examined the important role of multilateral development finance institutions in the private equity industry."

This is the focus of our theoretical analysis in this paper, where we model the interactions between a development bank, the private equity sector, and an emerging economy-entrepreneur. Our analysis is interesting at both an academic and a practitioner level. At the former level, it extends the existing research in venture capital/entrepreneur relationships, contracting and performance in two major ways: firstly, from a double-sided to a triple-sided

moral hazard framework, and secondly by incorporating the behavioural factors of private equity/entepreneur dyad empathy, entrepreneurial passion, and bank emotion into an economic agency model. Thus, scholars should be interested in considering the effects of these modelling developments on the equilibrium outcomes. Furthermore, our analysis provides policy implications for those working inside development banks, private equity, and emerging market entrepreneurship.

In our model, two private equity (PE) firms pitch to the development bank (DB) in order to obtain the bank's finance and support[2], such that the PE can then invest into, and work with, an emerging economy entrepreneur. When working together, the PE and the E possess synergistic economic ability: the added interest in our model is that the PE, through an empathetic relationship with the E, may be able to engender entrepreneurial/private equity passion in the working relationship. We analyse how the bank may consider these 'softer' skills and characteristics, in addition to the harder economic value-creating skills, when assessing the PE-pitches.

The bank chooses one of these PEs, based on the following trade-off. The PEs differ along two dimensions: one PE has higher (economic) synergistic value-creating ability (when working with the E), but the other one possesses higher (behavioural) PE/E passion-creation potential. Given these conflicting characteristics, the DB chooses one of the PEs to finance. The DB then exerts effort to mitigate political risk, while the chosen PE and the E work together to create 'operational value'. We contribute to five strands of existing venture capital/private equity research. First, by considering a tri-partite relationship between banks, PE-firms, and entrepreneurs, we extend the large body of research that examines double-sided moral hazard problems (such as double-sided effort shirking[3]) that exist between venture

[2]The authors attended PE pitches at EBRD, observing the manner and procedure of the pitches, and the bank's decision-making methods.

[3] Double-sided effort-shirking in VC/E has been analysed by Houben 2003; Casamatta 2003; Schmidt 2003; Repullo and Suarez 2004; Fairchild 2004; 2011; de Bettignies and Brander 2007; de Bettignies 2008, among others. Besides double-sided moral hazard approaches, other theoretical approaches to

capitalists and entrepreneurs[4]. The idea is that both entrepreneurs and venture capitalists (VCs) contribute to wealth-creation in the venture. However, they may take individually rational self-interested actions that reduce or destroy total value[5]. In contrast, we consider triple-sided moral hazard.

Second, we contribute to the growing research that considers an entrepreneur's choice of financier. For example, Landier (2001), Ueda (2004), Winton and Yerramilli (2004) and De Bettignies and Brander (2007) consider an E's choice between traditional bank debt financing or venture capital finance. Chemmanur and Chen (2006), Leshchinskii (2002) and Fairchild (2011) analyse the E's choice of VC or angel-financing. Hellmann (2002) analyses an E's choice between a purely financial (independent) VC and a strategic VC. Farboodi (2013) models an entrepreneur's choice between a venture capitalist and a bank, focussing on the effects of the differing control rights of the financiers. In a recent paper, Andrieu and Groh (2012) consider an entrepreneur's choice between two different types of VC: independent versus bank-affiliated. Similar to our analysis, Andrieu and Groh consider moral hazard in the form of effort-shirking. They consider the following trade-off for the entrepreneur in making his optimal decision: the independent venture capitalist is able to contribute better support quality, but, being financially-constrained, may liquidate the start-up inefficiently early from the entrepreneur's viewpoint. However, bank-affiliated firms may be less financially-constrained: thus, although they provide worse support, they may be more willing to allow the

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entrepreneurship exist. For example, Kon and Storey (2003) present a theoretical adverse selection model of entrepreneurial loan applications, with a focus on developing economies. Bertoni et al (2016) model the effect of entrepreneurial quality on the decision whether to seek venture capital funding.

[4] For an excellent review of the research into venture capital/entrepreneur contracting and performance, please see Burchardt et al (2014).

[5] As noted by Cable and Shane (1997), this is the classic prisoner's dilemma problem, where mutual cooperation between the E and the VC may maximise each player's payoff, but they each have the incentive to 'defect', destroying value, and both end up worse off.

start-up to continue longer, which benefits the entrepreneur. We take a different approach to all of this literature by focussing on the *development bank's* choice of finance-partner[6].

Third, existing research focuses on the economic factors affecting this choice. We consider both the economic *and* behavioural factors affecting the bank's choice. De Clerq and Sapienza (2001) introduce the term 'relational rents' in venture capital/entrepreneurial dyads, which refers to the value-creating potential of fairness, trust and reciprocity. As they note, "no in-depth analysis has been made of how relational rents might be created for both parties in the dyad." Fairchild (2011) takes the important first step in analysing this in a double-sided framework. We extend the behavioural analysis to a triple-sided framework.

In our model, the behavioural factor that we focus on is *entrepreneurial passion*. In our model, the passion that we consider is at the level of the PE/E dyad. The idea that we have is that a PE with softer empathetic skills, may not only affect synergistic economic ability, but may also engender passion for the venture within the PE/E dyad. In modelling this, we have been inspired by the research into entrepreneurial passion conducted by Stenholm and Renko (2016), Cardon and Murnieks (2017), and Cardon et al (2009). Stenholm and Renko demonstrate a positive relationship between entrepreneurial passion, bricolage (making do with existing resources), and start-up survival in a large sample of Finnish entrepreneurs who had started new businesses between 2005-2010. Importantly for our paper, the authors note that a) passion may affect effort levels: "When the organizations that entrepreneurs build and develop are aligned with 'who they are', their entrepreneurial efforts may become more passionate," and b) that entrepreneurs may possess differing levels of passion: "an entrepreneur who is passionate about inventing entrepreneurial solutions, founding a firm, and

[6] Hence, the body of research into the E's choice of financier (bank versus VC, or angel versus VC) has been developing over a number of years (the models feature two players, and, hence, double-sided moral hazard problems). In this paper, we believe that we are kick-starting a brand new area of behavioural game-theoretic research by analysing a financier's (in this case the DB's) choice of a co-financier (the PE) to invest into the E: in contrast to the existing research on *entrepreneurial* choice of financier, our model thus features three players, and *triple*-sided moral hazard problems.

developing that firm through early resource scarcity, is more likely to engage in bricolage than someone whose feelings about entrepreneurship are lukewarm (e.g. someone who is forced into business ownership because of the lack of other opportunities for work)." We argue that these factors may make entrepreneurial passion particularly important in emerging economies, since entrepreneurs in such markets are often forced into entrepreneurship due to lack of other opportunities, and may therefore be lukewarm (a contribution of our model, then, is that a passionate PE may engender passion in an otherwise lukewarm entrepreneur).

Fourth, we contribute to the recent research that is beginning to analyse the role of venture capital/private equity in emerging economies[7]. Much of the existing research on private equity focuses on the developed economies. For example, Schmidt and Wahrenburg (2004) consider the relationship between investors and European VC-funds, considering the effects of reputation, bargaining power, and contractual design. However, recently, scholars are beginning to examine the impact of private equity on entrepreneurial activity in developing markets. Balboa and Marti (2007) examine the factors affecting investors' choice of private equity firms in developing markets. Hazarika et al (2009) analyse the effect of institutional and cultural differences on global VC-investing, both in developed and developing economies. Meuleman and Wright (2011) analyse the process by which later-stage UK private equity firms invest across borders into continental Europe. They find that the presence of local private equity investors is very important in motivating cross-border investment. This has parallels with our model, in which the development bank typically prefers to invest into entrepreneurship in developing economies if it is able to involve a 'local' PE.

Finally, we contribute to the nascent research on the involvement of development banks in financing entrepreneurs in emerging economies. A major contribution of our analysis is that we develop a rigorous theoretical analysis of the involvement of development banks. Our

[7] In an interesting analysis, Martinez-Fierro et al (2016) analyse the relationship between the entrepreneurial environment and a country's stage of economic development.

model is close in spirit to Hainz and Kleimeier (HK 2010)[8], who consider optimal loan contracts (full recourse versus non-recourse/project finance loans) between development banks and entrepreneurs in developing markets characterised by high political risk. HK consider a double-sided moral hazard model in which the entrepreneur and the development bank both exert value-creating effort. The entrepreneur's effort affects operational success, while the development bank acts to mitigate political risk. Thus, according to HK, development banks perform an important role as a political umbrella. In contrast to their approach, we consider triple-sided moral hazard, as, in addition to the development bank and the entrepreneur, we consider a third player (the private equity manager) who also exerts value-creating effort. Furthermore, in our model, all three players take an equity-position in the venture (in contrast to the loan contract offered by the bank in HK's model)[9].

1.1 EBRD's Mission and Motives

Our analysis is of a Development Bank that takes an equity stake in private equity investment into emerging market entrepreneurship, and actively works to add value. Our analysis has been inspired by our contacts with one particular Development Bank, European Bank for Reconstruction and a Development (EBRD). EBRD's "Project Finance" website states:

"Project Investments are at the heart of our operations.... the principal forms of direct financing that the EBRD may offer are loans, equity, and guarantees. .. when the EBRD takes an equity stake, EBRD expects an appropriate return on its investment."

Furthermore, "one of the EBRD's key aims is to support the development of micro-, small and medium-sized enterprises (SMEs) which are crucial to nurturing a private sector economy. To

[8] This model appears in Hainz and Kleimeier's (2010) working paper. In their published version of this paper (2012), the model has been removed, but their concepts and empirical analysis remain.

[9] Indeed, the inspiration for our model, EBRD, takes both loan and active equity positions in their PE/E ventures.

do this, we may make equity and loan financing available to SMEs through a range of intermediaries throughout the countries where we work."

On their website "What we do with Equity Funds", EBRD identifies that the Equity Funds Team works with all types of Funds, with a focus on a) Reaching SMEs, b) Building Institutional capacity in the region, c) Developing capacity through innovation, d) Fostering local innovation and technological development, d) Attracting institutional investors, and e) Increasing transparency. In short, EBRD takes an equity stake in PE-emerging entrepreneurship, and is actively involved in value-creation in the region, beyond its role as a political umbrella, mitigating political risk.

Pissarides (1999) provides one of the first discussions of the challenges facing multilateral development banks (focussing on the European Bank for Reconstruction and Development[10] (EBRD)) in financing entrepreneurial activity in emerging markets (Central and Eastern Europe). She argues that lack of finance provides the main obstacle to the growth of SMEs. She notes that the EBRD's policy towards SME-financing focuses on institution-building, a commercial approach, and financial system orientation. Furthermore, according to the author, the EBRD recognises the importance of co-financing with local investment or commercial banks, equity participation in local (or regional) investment or commercial banks, and (most relevant to our model) equity participation in regional or country/sector specific investment and venture capital funds. Importantly, Pissarides (1999) notes the crucial importance of the experience of the venture capital fund managers. She argues that the main reason why some

[10] Pissarides (1999) notes the "The EBRD has a special mission. At the time of its creation, one of the features that distinguished the EBRD from the World Bank and the European Investment Bank was its mandate to support the private sector." The bank in our model focuses on this role.

funds do not perform well is that the managers lack expertise. Furthermore, she notes that EBRD provides a certain political comfort with regard to the countries of operation[11].

1.1: Model Contribution and Intuition

In summary, a contribution of our analysis is that we consider triple-sided moral hazard problems in the performance of a development bank/private equity fund/entrepreneur triad, considering the impact of both economic and behavioural factors.

In our modelling approach, we have in mind the following simplified intuition. The development bank is located in a developed country (eg UK or US). Its policy is to finance entrepreneurial activities in foreign developing economies. However, due to the distance involved, the bank finds it difficult to seek out decent entrepreneurial opportunities, and finds it difficult to assist in adding operational value. In addition to these economic impediments, in terms of behavioural factors, the distance involved means that the bank and the E are unable to build up empathetic relationships. Therefore, the bank seeks private equity partners that specialise in financing entrepreneurs in developing economies, and in building relationships with them. In short, the PE partners have more time, resources and expertise to dedicate to this activity than the DB has. Indeed, according to Settel et al (2009), "multilateral development finance institutions often believe that providing support to small and medium enterprises can be crucial to a region's development. However, overseeing many direct equity investments in SMEs would be tactically difficult for many of the MDFIs given the intense requirement for their operational and strategic involvement. For this reason, MDFIs often turn to funds to manage their SME investments."

We now turn to consideration of our model.

2. The Model

[11] Indeed, Settel et al (2009) quote Teresa Barger of IFC: "Fund management is all about value-addition. Only successful managers have a development impact by building great companies."

We consider private equity/development bank funding for entrepreneurial ventures in emerging economies. Particularly, we develop a behavioural game-theoretic model involving three player types: a development bank, an entrepreneur, and a private equity sector. We focus on the economic and behavioural factors affecting the bank's choice of private equity partner. Hence, we consider a private equity sector consisting of two types of private equity firm of differing economic abilities and behavioural attributes.

In our game, two private equity teams 'pitch' to the development bank in an attempt to obtain bank-involvement in the proposed investment. Both private equity teams have the same entrepreneur in mind to invest in. The bank can only invest in one of them, and therefore, the bank must choose the private equity team that it considers to be 'best' (for example, the bank may have limits on its investment budget).

The details of the game are as follows. There are three types of player: one development bank (B), two PE firms (referred to as PE_i, where $i \in \{1,2\}$), and an entrepreneur who has an innovative investment opportunity available ('the project'). The opportunity requires investment funds $I > 0$ that the E does not have. Therefore, the E seeks to obtain finance from the private equity sector: in turn, the PE sector approaches the bank. All players are risk-neutral, and the discount rate is zero.

The development bank chooses which PE-team to accept or reject. A major contribution of our analysis is that we consider both economic and behavioural factors affecting the bank's choice of PE. In terms of the former, the bank considers each PE-team's potential value-creating abilities. In terms of the latter, the bank considers the potential for the PE to create an empathetic, fair and trustworthy partnership with the entrepreneur. In our model, these behavioural factors create positive emotional feelings from the E and the PE towards venture success, which we term as "empathetic-excitement" or "passion". Since we are focussing on passion, as the outcome of the PE/E empathy, we henceforth drop any reference to empathy in modelling this, and simply refer to the PE/E passion parameter.

We represent the passion parameter for dyad i as θ_i (we discuss this further in the timeline, date 1, below). A further contribution of our analysis is that we also consider the following potential behavioural bias facing the bank. When assessing, and comparing, the two pitching PEs, the bank should remain objective. However, when assessing whether a PE can create empathy and passion in her PE/E dyad (ie, in assessing the PE's softer skills and empathetic character), the bank itself may develop an emotional attachment towards that PE. We will demonstrate that this can distort the bank's PE-choice inefficiently. We represent the bank's attachment parameter for PE_i as b_i.

Having accepted a PE-team, the bank provides finance to that team. Next, all three players negotiate equity stakes in the venture (this is the 'financial contracting' stage of the game). In our analysis, we consider the effect of various bargaining game set-ups. The equity stakes agreed at the 'financial contracting' stage affects each player's effort incentives at the subsequent 'effort' stage of the game. In our analysis, all three players exert effort that contributes to value-creation. The bank exerts effort to mitigate political risk. This involves the bank (as a political umbrella) creating 'safer' conditions for the E and the PE to create operational value. The bank's political risk-mitigation stage is a key element of our model, reflecting the essential involvement of the bank in the process of private equity investment into emerging market entrepreneurship, due to political risk. The entrepreneur and the private-equity partner work together to build venture value. In our analysis, all three players exert effort simultaneously.

In our model, all three players (the E, PE, and bank) are required in the 'partnership' in order to create value. The bank and the private equity firm need each other. The bank is unable to 'reach' the E without the involvement of the PE. The PE needs the bank due its political risk-mitigation characteristics (thus, we do not consider the situation where the bank invests directly into the E, or the situation where the PE invests without the involvement of the bank). Furthermore, the PE and the E need each other to create operational value. As all three players are involved (the bank, the PE, and the E), our model focuses on triple-sided moral

hazard in terms of effort-shirking. Furthermore, the players' effort incentives are affected by their equity shares. The detailed timeline of the game is as follows:

Date 1: Both PE types pitch to the bank. The bank B chooses one of the PE firms in order to invest into the E-sector. Two PE firms exist: PE_1 has high economic ability, but zero empathy towards the entrepreneur: thus, in the E/PE_1 dyad, there is zero excitement/passion towards the venture: ($\theta_1 = 0$). PE_2 has low economic ability, but her relationship with the E creates positive empathy, which in turn creates positive excitement/passion towards the venture ($\theta_2 > 0$). The emotional excitement inflates the players' ***perception*** of the venture value created.

Hence, in making its choice of PE, the bank trades-off the economic (PE's value-creating abilities) and behavioural factors (the PE's empathy levels, which create excitement in the dyad). We demonstrate in our analysis that the bank may not necessarily select the higher ability PE_1. It may be optimal for the bank to choose the lower ability, but higher-empathy PE_2.

Furthermore, during the pitch, the bank may develop an emotional attachment towards a PE. We represent the bank's attachment level for PE_i as $b_i(1+\theta)^2$. where $b_i \geq 0$ represents the bank's attachment parameter: It is multiplied by $(1+\theta)^2$ to capture the idea that, when assessing the PE's pitch, the level of passion/empathy that the PE may have for the potential E may engender an emotional attachment from B to PE. Due to $b_i(1+\theta)^2$, the higher the potential passion between PE and E, the higher the passion that the bank may feel towards PE, dictated by b_i. For example, if $b_i = 0$, the bank is unbiased/unemotional in its assessment of the PE's pitch.

Date 2: First bargaining Stage[12]: The bank makes an ultimatum (take-it-or-leave-it) equity offer to the PE. The bank proposes to keep an equity stake $\alpha_B \in [0,1]$ (which represents the bank's fractional holding of the venture's expected value), and offers the balancing equity stake $1-\alpha_B \in [0,1]$ to the PE. In doing so, the bank makes this offer optimally, recognising that the PE will subsequently negotiate an allocation of her equity stake with the entrepreneur.

Date 3: Second bargaining stage: The PE and the E now bargain over their equity shares. Of the $1-\alpha_B$ that the PE received from the bank, the PE makes an ultimatum offer to the E: the PE proposes to keep α_{PE} and offers the balance $1-\alpha_{PE}$ to the E.

Date 4: *Effort Stage (Political Risk Mitigation and operational):* At this stage, all 3 players exert value-creating effort. The bank exerts political-risk mitigating effort: (the bank acts as a political umbrella). Simultaneously, whilst the bank exerts *Political Risk Mitigating* effort, E and PE exert *operational* effort.

After the 3 players have exerted effort, the venture is subject to exogenously given political- and operational- risks (or uncertainty) that are not resolved until after all 3 players have exerted effort. We model these two levels of risk in the following convenient two-staged manner. With probability q, the venture survives the political-risk stage. With probability $1-q$, the venture fails at this stage. If the venture survives the political-risk stage, then with probability $p \in [0,1]$, the operational stage is successful, while with probability $1-p$, the operational stage is unsuccessful. For venture success, both stages need to be successful. Thus, with probability pq, the venture is successful: in this case, B's, and PE/E dyad's, efforts create final venture value $V = R\psi e_B^{\frac{1}{2}}\gamma_i(e_E e_{PE})^{\frac{1}{2}}$. With probability $1-pq$, value is destroyed, such that venture value is zero: in this case, the B's, and PE's and E's efforts are

[12] We also consider, as an interesting comparison, the case where the players negotiate equal equity stakes.

wasted. Thus, ex ante value (at the time that the 3 players are exerting effort) is

$$V = pqR\psi e_B^{\frac{1}{2}}\gamma_i(e_E e_{PE})^{\frac{1}{2}},$$

where γ_i represents the PE/E dyad's operational synergy-ability, and ψ represents the bank's political risk-mitigating ability. Each player faces a cost of effort βe_i^2.

Finally the bank, the PE, and the E receive their share of venture value, according to their equity stakes. The game ends.

As is usual in sequential games, we solve for equilibrium play by backward induction.

That is, we begin by considering the final effort stage of the game (at date 4), taking as given the bank's choice of PE at date 1, and the equity shares negotiated at dates 2 and 3. After that, we gradually move backwards through the game, solving each stage, until we finally reach date 0, thus solving the entire game.

2.1 Effort Stage (Date 4)

At date 4, the E, the PE, and the B exert their effort levels, given the, equity shares agreed at the two bargaining stages. Thus, the E, the PE, and the B, exert their effort levels to maximise their respective payoffs:

$$\prod_E = \alpha_E V(1+\theta_i) - \beta e_E^2. \quad (1)$$

$$\prod_{PE_i} = \alpha_{PE} V(1+\theta_i) - \beta e_{PE_i}^2 \quad (2)$$

$$\prod_{B_i} = \alpha_B V - \beta e_{B_i}^2 + b_i(1+\theta_i)^2 - I \quad (3)$$

where

$$V = pqR\psi e_B^{\frac{1}{2}}\gamma_i(e_E e_{PE})^{\frac{1}{2}}. \quad (4)$$

We note that the first term in each of these equations represents that player's expected cashflows from the venture, being their equity stakes in the venture multiplied by the venture's total expected value. These cashflows are further inflated by the passion parameter $1+\theta$. The second term represents the cost-of-effort.

Note that, since the effort levels interact in creating value (see equation 4), each player's optimal effort level depends on the effort levels of the other player. Thus, we first solve $\frac{\partial \prod_E}{\partial e_E} = 0$, $\frac{\partial \prod_{PE_i}}{\partial e_{PE_i}} = 0$, and $\frac{\partial \prod_{B_i}}{\partial e_{B_i}} = 0$, in order to obtain the E's, the PE's, and the B's reaction functions (in lemma 1). Then we solve the reaction functions in order to obtain each player's optimal effort levels (in lemma 2).

Thus, we obtain the following results:

Lemma 1: *The E's, PE's and B's reaction functions:*

At the date 4 effort stage, the E's and PE's reaction functions are given by:

$$e_E^* = [\frac{\alpha_E pqR\psi e_B^{\frac{1}{2}}\gamma_i e_{PE}^{\frac{1}{2}}(1+\theta_i)}{4\beta}]^{\frac{2}{3}} \quad (5)$$

$$e_{PE}^* = [\frac{\alpha_{PE} pqR\psi e_B^{\frac{1}{2}}\gamma_i e_E^{\frac{1}{2}}(1+\theta_i)}{4\beta}]^{\frac{2}{3}} \quad (6)$$

$$e_B^* = [\frac{\alpha_B pqR\psi\gamma_i e_E^{\frac{1}{2}} e_{PE}^{\frac{1}{2}}}{4\beta}]^{\frac{2}{3}} \quad (7)$$

These reaction functions capture the triple-sided moral hazard features of our model. That is, they demonstrate how the three parties' effort levels are affected by each party's expectations of each of the other players' effort levels. This is further affected by the bank's political risk-

mitigating ability ψ, and the PE and E's operational ability γ_i. Furthermore, the fact that these parameters appear multiplicatively in (5), (6) and (7) demonstrates that a feedback effect is present when each player is considering the effect of the other players' abilities on their own effort levels. For example, the higher the bank's ability at the political risk-mitigation stage, the higher the effort that the bank will exert, which then feeds back to higher effort by the PE and the E, which again feeds back into the bank's optimal effort level (positive feedback loop in effort levels).

At the other extreme, consider the case where, for example, the bank has no political risk-mitigating abilities $(\psi = 0)$. Then none of the players will exert any effort, regardless of the operational ability of the PE and the E: $e_E^* = e_{PE}^* = e_B^* = 0$. Of course, this works in reverse too: if the E and PE have no operational ability, then, even if the bank has high political risk-mitigating abilities, again, none of the players will exert any effort: $e_E^* = e_{PE}^* = e_B^* = 0$. (extreme negative feedback-loop).

Furthermore, we observe, in these reaction functions, that each player's effort level is positively related to that player's equity stakes. After solving these reaction functions in lemma 2 below, we will observe that each player's effort level is also affected by the two other players' equity stakes, since that affects the other players' effort levels.

It is also interesting to observe the following in lemma 1: although PE/E passion has no direct impact on the bank's effort level in (7), it will feed into the bank's effort level through the interaction of the reaction functions (5) and (6). Thus, higher passion in the PE/E dyad drives higher PE/E effort at the operational stage: in anticipation of this, the bank exerts more effort at the political risk-mitigation stage. We will shortly observe this in lemma 2, equation (10).

Solving the reaction functions, we obtain each player's optimal effort levels

Lemma 2: The three players' (E, PE, and B) optimal effort levels are:

$$e_E^* = \frac{\alpha_E \alpha_{PE}^{\frac{1}{2}} \alpha_B^{\frac{1}{2}} [pqR\psi\gamma_i]^2 (1+\theta)^{\frac{3}{2}}}{16\beta^2}, \tag{8}$$

$$e_{PE}^* = \frac{\alpha_{PE} \alpha_E^{\frac{1}{2}} \alpha_B^{\frac{1}{2}} [pqR\psi\gamma_i]^2 (1+\theta)^{\frac{3}{2}}}{16\beta^2}. \tag{9}$$

$$e_B^* = \frac{\alpha_B \alpha_E^{\frac{1}{2}} \alpha_{PE}^{\frac{1}{2}} [pqR\psi\gamma_i]^2 (1+\theta)}{16\beta^2}, \tag{10}$$

Given these optimal effort levels, we thus obtain

$$V^* = \frac{\alpha_E \alpha_{PE} \alpha_B [pqR\psi\gamma_i]^4 (1+\theta)^2}{64\beta^3}, \tag{11}$$

$$\prod_E^* = \frac{3\alpha_E^{\ 2} \alpha_{PE} \alpha_B [pqR\psi\gamma_i]^4 (1+\theta)^3}{256\beta^3}, \tag{12}$$

$$\prod_{PE}^* = \frac{3\alpha_E \alpha_{PE}^{\ 2} \alpha_B [pqR\psi\gamma_i]^4 (1+\theta)^3}{256\beta^3}, \tag{13}$$

$$\prod_B^* = \frac{3\alpha_E \alpha_{PE} \alpha_B^{\ 2} [pqR\psi\gamma_i]^4 (1+\theta)^2}{256\beta^3} + b(1+\theta)^2 - I, \tag{14}$$

Having solved the reaction functions, the equations in lemma 2 emphasise the interaction effects between the players' effort levels: particularly (as mentioned above), the interactive effects of the player's equity stakes. This will become important when we consider bargaining: when making an equity offer, a player needs to understand that taking more equity for herself increases her own share of the venture value, and improves her effort incentives: but, at the same time, it reduces the other players' equity stakes, reducing their effort incentives. This creates a trade-off for a player when proposing an equity allocation: keeping enough equity for herself, while providing equity, and effort incentives, for her partners.

2.2: Date 1: Bank's optimal choice of PE

In our next step, we move back to date 1 to consider the bank's optimal choice of PE-team, given the (anticipated) equity stakes to be negotiated at date 2 and 3.

In this section, we keep the equity allocation general, and solve for the bank's optimal choice of PE. In section 3, we consider the effect of various bargaining models and powers.

In making its optimal choice, the bank considers equation (14) incorporating the relevant parameters for PE_1 and PE_2. Using (14), the bank compares:

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$$\prod_B *(PE_1) = \frac{3\alpha_E \alpha_{PE} \alpha_B{}^2 [pqR\psi\gamma_1]^4}{256\beta^3} - I, \qquad (15)$$

$$\prod_B *(PE_2) = \frac{3\alpha_E \alpha_{PE} \alpha_B{}^2 [pqR\psi\gamma_2]^4 (1+\theta)^2}{256\beta^3} + b(1+\theta)^2 - I \qquad (16)$$

Where $\prod_B *(PE_i)$ means the bank's payoff given that it chooses PE_i.

We also need to compare the effect of the bank's choice of PE on venture value. From equation (11):

$$V *(PE_1) = \frac{\alpha_E \alpha_{PE} \alpha_B [pqR\psi\gamma_1]^4}{64\beta^3}, \qquad (17)$$

$$V *(PE_2) = \frac{\alpha_E \alpha_{PE} \alpha_B [pqR\psi\gamma_2]^4 (1+\theta)^2}{64\beta^3}, \qquad (18)$$

a) We define two critical values of PE_2 / E passion, as follows: $\theta_\prod$' at which

$\prod_B *(PE_1) = \prod_B *(PE_2)$.

b) θ_V' at which $V *(PE_1) = V *(PE_2)$.

When $\theta \in [0, \theta_\prod')$, $\prod_B *(PE_2) < \prod_B *(PE_1)$. When $\theta \geq \theta_\prod'$, $\prod_B *(PE_2) \geq \prod_B *(PE_1)$.

When $\theta \in [0, \theta_V')$, $V *(PE_2) < V *(PE_1)$. When $\theta \geq \theta_V'$, $V *(PE_2) \geq V *(PE_1)$.

Solving $\prod_B *(PE_1) = \prod_B *(PE_2)$ and $V *(PE_1) = V *(PE_2)$ (in equations 15 – 18), we obtain:

$$\theta_{\Pi}'(b>0)=\sqrt{\frac{3\alpha_E\alpha_{PE}{\alpha_B}^2(pqR\psi\gamma_1)^4}{3\alpha_E\alpha_{PE}{\alpha_B}^2[pqR\psi\gamma_2]^4+256\beta^3 b}}-1. \quad (19)$$

$$\theta_V'=(\frac{{\gamma_1}^2}{{\gamma_2}^2})-1 \quad (20)$$

2.3. The effect of Bank emotionality *on its choice of PE*

We begin by considering the case where the bank is able to remain unemotional and rational throughout the PE-pitch. That is, the bank makes an objective comparison of the two PEs, untainted by emotional attachment towards the 'softer' PE2. Thus, we incorporate $b=0$ into eq (16), and thus into eq (19). We note that, when $b=0$,, $\theta_{\Pi}'(b=0)=\theta_V'(b=0)=(\frac{{\gamma_1}^2}{{\gamma_2}^2})-1.$

We are thus able to state our main result.

Proposition 1*: When the bank is unemotional, rational and objective ($b=0$), it focuses entirely on financial return:* $\theta_{\Pi}'=\theta_V'$.

the bank's optimal choice of PE partner is as follows.

a)If $\theta<\theta_{\Pi}'=\theta_V'$ *the bank chooses* PE_1.

b) If $\theta\geq\theta_{\Pi}'=\theta_V'$ *the bank chooses* PE_2.

In either case, the bank's choice of PE maximises expected venture value. The bank makes the efficient choice.

Next, we consider the case where the bank becomes emotionally attached when assessing PE2: $b>0.$ Comparison of eqs (19) and (20) reveals the following. As the bank's private

excitement for PE_2: b increases, θ_Π' decreases, while θ_V' remains unchanged (as in equation 20): that is, $\frac{\partial \theta_\Pi'}{\partial b} < 0;\ \frac{\partial \theta_V'}{\partial \omega} = 0.$

Thus, our second result is as follows:

Proposition 2: *When the bank is emotional* $(b > 0)$: *then* $\theta_\Pi' < \theta_V'$. *Then:*

i) If $\theta < \theta_\Pi' < \theta_V'$, *the bank chooses* PE_1 *and this maximises firm value.*

ii) If $\theta_\Pi' < \theta < \theta_V'$, *the bank chooses* PE_2 *and this minimises firm value.*

iii) If $\theta_\Pi' < \theta_V' < \theta$, *the bank chooses* PE_2 *and this maximises firm value.*

We define proposition 2 ii) $\theta_\Pi' < \theta < \theta_V'$, as the inefficient interval (whereby the bank's emotionality 'confuses' the bank: in this interval, the bank does not make the economic value-maximising decision). Comparing equations (19) and (20), we are able to state the following:

Corollary:

The inefficient interval $\theta_\Pi' < \theta < \theta_V'$, *becomes larger (the lower end 'shifts leftwards', with the upper end fixed) as i)* b *increases:* $\frac{\partial \theta_\Pi'}{\partial b} < 0;\ \frac{\partial \theta_V'}{\partial \omega} = 0,$ *ii) the triple-sided moral hazard problem intensifies:* $\frac{\partial \theta_\Pi'}{\partial \psi \gamma_1} > 0;\ \frac{\partial \theta_V'}{\partial \psi \gamma_1} = 0.$ *Thus, if the players' abilities reduce,* θ_Π' *'shifts leftwards', with* θ_V' *fixed.*

This corollary states that, as the weighting that the bank places on emotionality increases, the inefficient interval becomes larger, such that there is a greater range of PE2/E passion for which the bank chooses economic value-minimising PE2. Similarly, corollary :ii) states that the inefficient interval increases if the TSMH problem intensifies (measured here by the

interaction between the bank's and the PE/E's value creating abilities, such that if either or both abilities reduce, the TSMH problem of effort-shirking intensifies).

Corollary ii) deserves greater attention. This result states that, as PE1/E synergy ability reduces, the bank switches to PE2 for ever lower levels of PE2/E passion. That is, as economic ability reduces, PE/E passion becomes increasingly more important in value-creation. This may be particularly important in entrepreneurship in emerging economies, where economic abilities may be low (due to lack of experience, and individuals being forced into entrepreneurship due to lack of other opportunities): passion and bricolage may now be particularly important. In our analysis, PE2 is able to create empathy and passion in their working relationship with the E, which may be particularly important in emerging entrepreneurship. We believe that we are the first to identify that PEs may help to encourage entrepreneurial passion/bricolage.

2.3. Effects of Bargaining

Thus far, we have solved the game using general equity stakes α_E, α_{PE} and α_B, for the 3 players (particularly focussing on B's optimal choice of PE). We demonstrated that, when $b = 0$, B's choice of PE is independent of, and unaffected by these equity stakes (see equations 19 and 20, and proposition 1).

However, B's choice of PE is affected by these equity stakes when $b > 0$ (see equation 20, and proposition 2). This is because, when $b > 0$, B's payoff incorporates both its equity cashflow value, and its emotional attachment parameter. As the players' equity stakes change, this affects each player's individual effort levels, which, in turn, affects overall venture value, and hence the balance within B's payoff between cashflow and emotionality considerations. If the change in the players' equity stakes reduces overall venture value, B places more weighting on its emotionality b, which decreases the critical PE2/E passion at which B switches from PE1 to PE2.

We explore this in more detail in this section, focussing on two extreme, but realistic cases: a) the case where the bank has the bargaining power over the PE in their negotiations, and the PE has the bargaining power over the E in *their* negotiations, and b) case where the 3 players negotiate equal equity stakes.

We solve case a) in the following manner. In the first bargaining stage, the bank makes an equity offer $1-\alpha_B$ to the PE, while keeping α_B. PE then takes $1-\alpha_B$ into her negotiations with E. We obtain the following result.

Proposition 3: *When the bank has the bargaining power over the PE at the first bargaining stage, and the PE has the bargaining power over the E at the second bargaining stage, the equilibrium equity stakes are:*

$$\alpha_B^* = \frac{1}{2},\ \alpha_{PE}^* = \frac{1}{3},\ \alpha_E^* = \frac{1}{6}.$$

Proof: available on request from the authors.

We substitute these equity stakes into equation (19) to obtain the critical PE2/E passion value, given these equity stakes, as follows:

$$\theta_{\Pi}'(b>0) = \sqrt{\frac{3(pqR\psi\gamma_1)^4}{3[pqR\psi\gamma_2]^4 + 18432\beta^3 b}} - 1. \qquad (21)$$

As noted, in our alternative case, we consider the situation where the partners have equal equity shares $\alpha_B = \alpha_E = \alpha_{PE} = 1/3.$ The critical PE2/E passion value, given these equal equity stakes is as follows:

$$\theta_{\Pi}'(b>0) = \sqrt{\frac{3(pqR\psi\gamma_1)^4}{3[pqR\psi\gamma_2]^4 + 20736\beta^3 b}} - 1. \qquad (22)$$

,

From this point on, we clarify our analysis by considering the following parameter values:

$$R = 1000;\ \beta = 1000;\quad \theta_1 = 0;\ \theta_2 > 0;\ \psi = 5;\ \gamma_1 = 10;\ \gamma_2 = 4; \qquad p = q = 0.5.$$

We plot these critical PE2/E passion levels, as a function of b in the following figure:

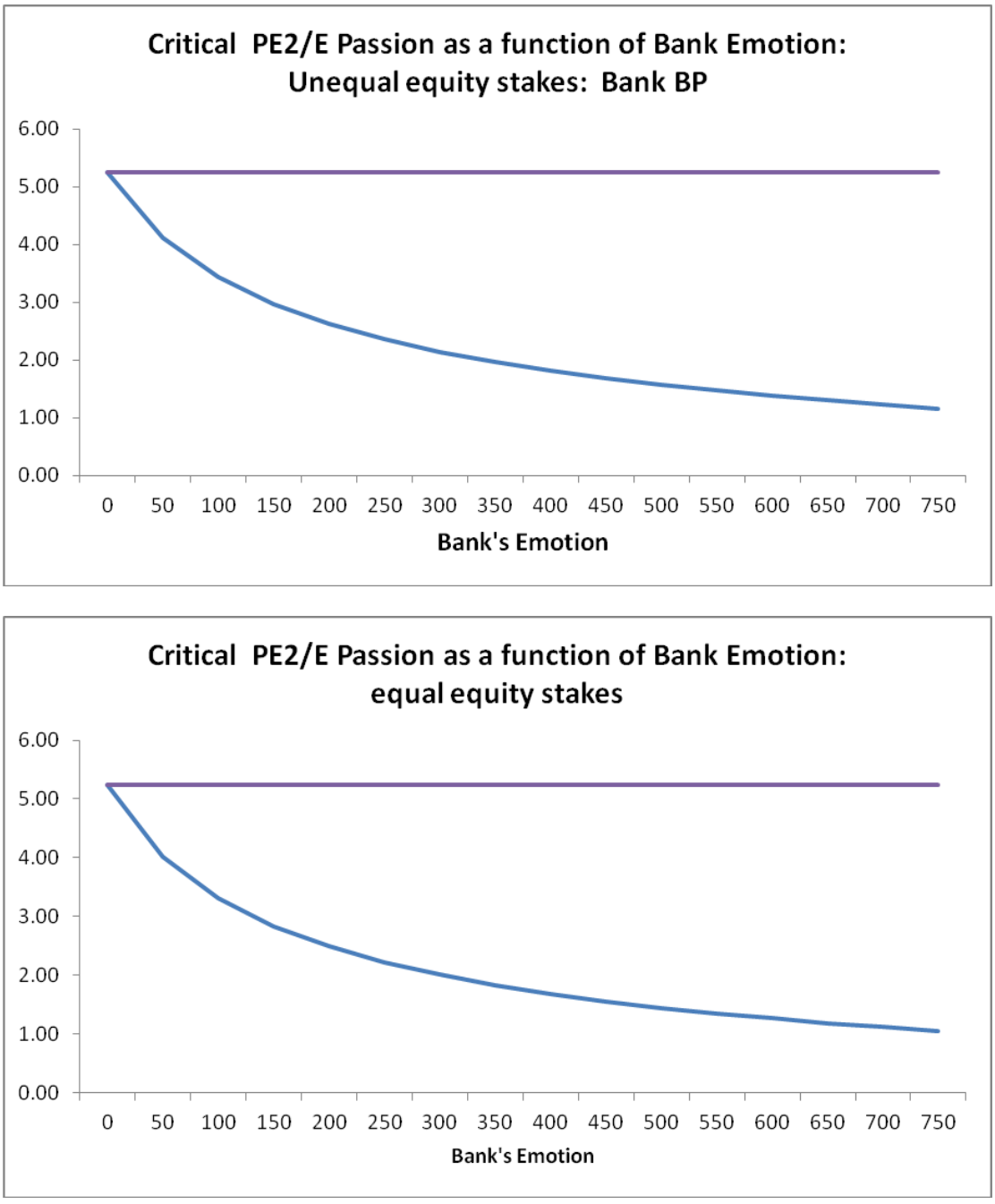

Figure 1: Comparison of the critical PE2/E passion level as a function of bank emotion in the case of unequal bargaining power versus equal equity stakes

In each diagram, the horizontal line represents the critical PE2/E passion level where $V^*(PE_1) = V^*(PE_2)$ (as in equation 20): it is horizontal, as it is independent of b. The downward sloping line represents the critical PE2/E passion levels affecting B's decision (where the B switches from PE1 to PE2), as in equations 21 (for unequal bargaining power) and 22 (for equal equity stakes).

These diagrams confirm the following. When $b = 0,$ the critical PE2/E passion level where $V^*(PE_1) = V^*(PE_2)$ is identical to the critical PE2/E passion level where $\prod_B{}^*(PE_1) = \prod_B{}^*(PE_2)$. In our example, the critical PE2/E passion level equals 5. That is, when $b = 0,$ B makes the efficient, value-maximising, choice of PE, as in proposition 1, switching from PE1 to PE2 at $\theta_2 = 5.$

As b increases, the inefficient interval (the vertical distance between the downward sloping line and the horizontal line) increases: this is the interval where B makes the value-minimising choice of PE2, due to bank emotion, as in proposition 2.

We also note little difference between the downward sloping lines in the two diagrams. That is, whether we consider the case of equal equity stakes, or the case of unequal equity stakes with unequal bargaining power, this makes little difference to B's critical PE2/E passion value at which B switches from PE1 to PE2, given b. Therefore, from now on, we focus on the case of equal equity stakes: $\alpha_B = \alpha_E = \alpha_{PE} = 1/3.$

3. Interaction between PE2-passion and B-emotion

In this section, we continue to work with the parameter values introduced above, and, focussing on the case of equal equity stakes between the players, we consider the effect of the interaction between PE2/E passion and bank emotionality on the bank's choice of PE, and the effect on the inefficient interval.

Incorporating these numerical values (including equal equity stakes) into equations (15) – (18) (with equal equity stakes), we derive the following diagrams[13].

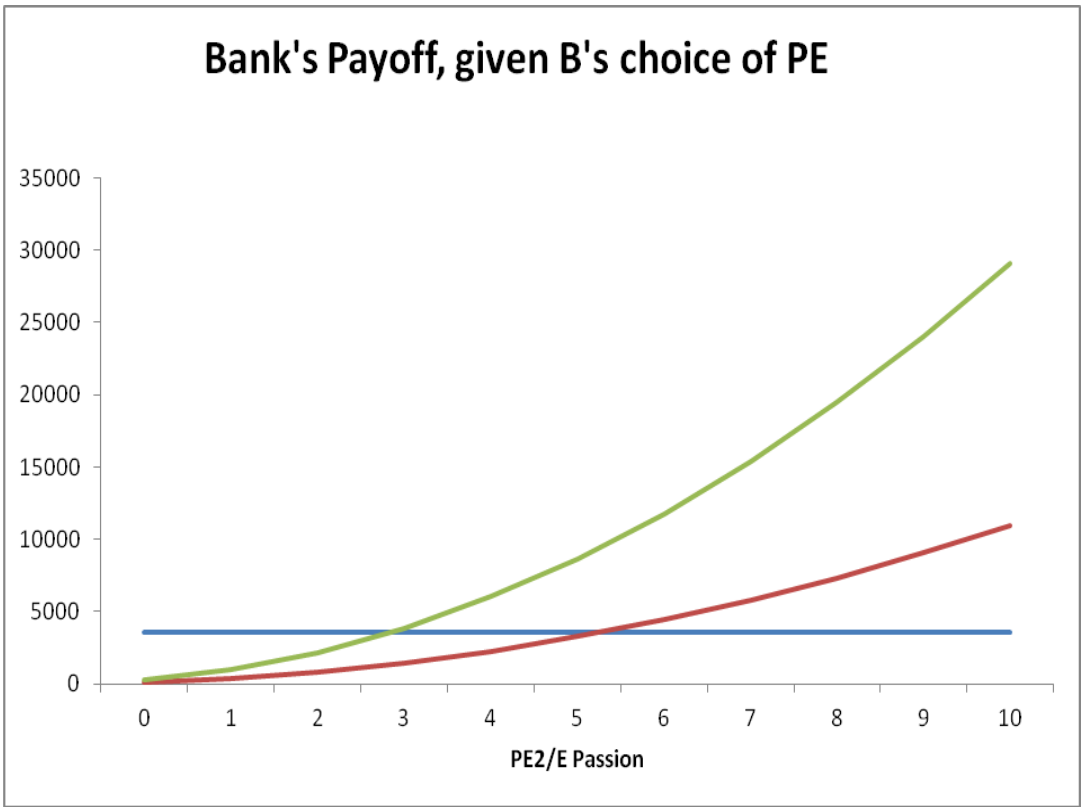

Figure 2: .The effect of PE2/E passion on Bank's Payoffs, given B's choice of PE: Equal Equity Stakes

[13] Our excel sheets, containing the full calculations behind the results and diagrams, are available on request from the authors.

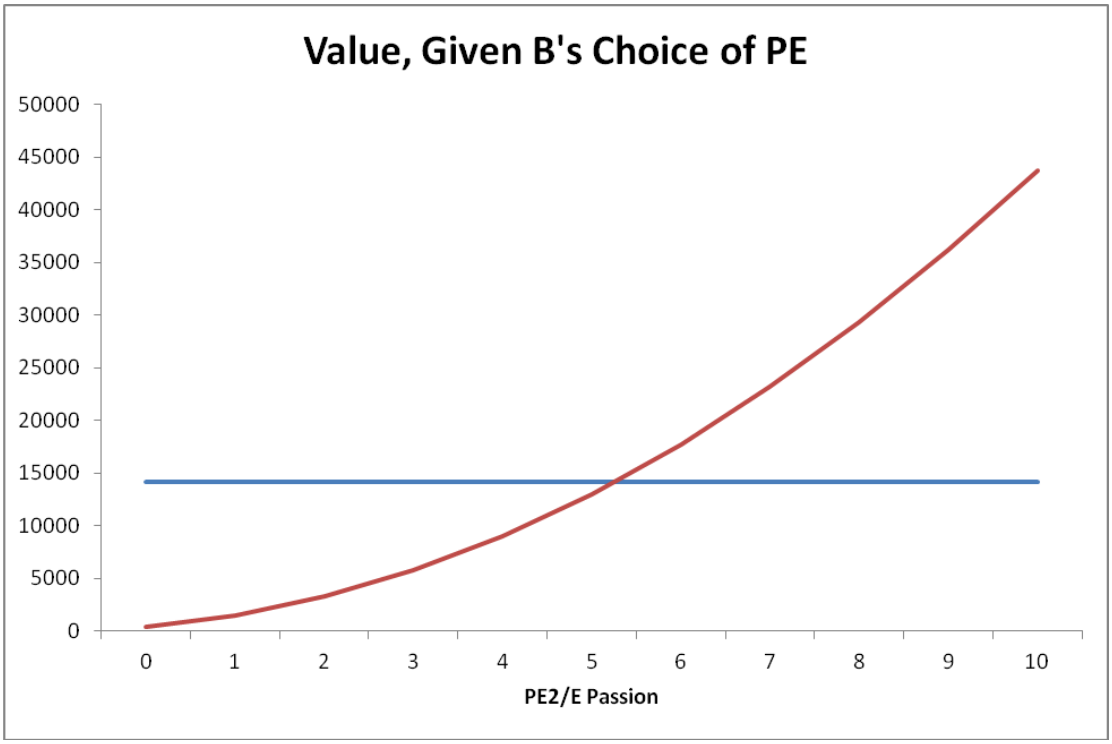

Figure 3. The effect of PE2/E passion on venture value, given B's choice of PE: Equal Equity Stakes

The following discussion surrounding these diagrams supports proposition 1. In figure 2, the horizontal line represents the bank's expected payoff from choosing PE1. The upward sloping lines represent the bank's expected payoff from choosing PE2: the lower one is the case where the bank is unbiased (B has zero emotional attachment towards PE2: $b = 0$). As b increases, the line rotates: hence, the upper rotated line includes B's emotional attachment towards PE2, $b > 0$. Figure 3 demonstrates the effect of the bank's choice of PE (from diagram 1) on expected venture value. We note that, when the bank has zero passion for PE2, and thus focusses entirely on economic value-creation, the critical level of PE2/E passion is $\theta_{\Pi}' = \theta_{V}' = (\frac{\gamma_1^{\,2}}{\gamma_2^{\,2}}) - 1 = 0.5$. Hence, the bank makes the *economically* efficient decision. That is, it switches from PE1 to PE2 at $\theta_{\Pi}' = \theta_{V}' = 0.5$ (see diagram 1), and expected venture value from PE2 'cuts through' the expected venture value for PE1 at that point (see diagram 2).

When the bank has positive passion for PE2, the bank's critical level of PE2/E passion reduces to $\theta_{\Pi}' \approx 0.3$. Therefore, in figure 2, the bank switches from PE1 to PE2 at this level of PE2/E passion. From an economic value-creation viewpoint, this is 'too early': there is now a PE2/E passion-interval between $\theta_{\Pi}' \approx 0.3$ and $\theta_{V}' = 0.5$ in figure 3, where the bank chooses PE2, and this is value-minimising.

As a policy implication, we note here that increasing PE/E passion is generally desirable: however, the interaction with B's emotion can create some 'confusion' or conflict in the bank's decision-making, since it creates an inefficient interval, where the bank switches to the lower value-creating PE2. The bank needs to remain objective and emotionless in its decision-making, if it wishes to maximise value.

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4. Bank Coaching/Mentoring of PE/E Dyads

Thus far in our analysis, the only ability that the bank possessed was in terms of political risk-mitigation. In this section, we consider a case where, in addition to political risk-mitigation, the Development Bank can assist/coach/mentor its PE/E teams. We focus on a case where the bank can coach/mentor to improve PE1/E economic synergy (γ_1), or PE2/E passion (θ_2).

We focus on the case of equal equity stakes. Furthermore, we focus on the case where B is unbiased: no emotional attachment $(b = 0)$.

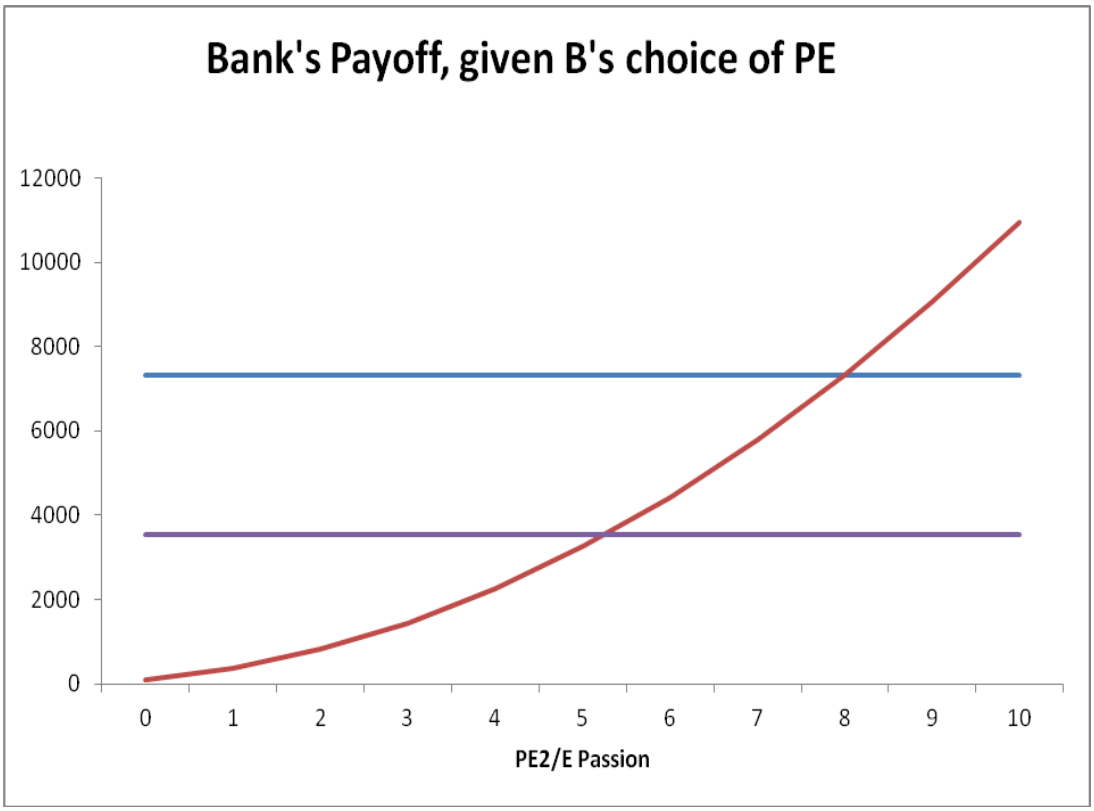

Figure 4: Bank's Payoffs: analysis of B's investment in PE1/E synergy and PE2/E passion improvement

Consider a situation where PE1 and PE2 are pitching to the B, and the B is not considering how it can help to improve PE1/E economic synergy, or PE2/E passion. Consider the case where PE2/E passion is currently $\theta = 2,$ in the absence of any assistance/mentoring/coaching by B. Furthermore, the current PE1/E economic synergistic ability, in the absence of coaching by the B, is $\gamma = 10,$ producing the lower horizontal line. The Bank will choose PE1.

Now, consider the case where the bank understands that it can coach/mentor either PE/E dyad. In the case of coaching the PE1/E dyad, this improves economic synergistic ability, shifting the horizontal line upwards to the upper line. If coaching by B increases PE2/E empathy to $\theta < 8,$ B continues to choose PE1 at the pitch. However, if coaching by B increases PE2/E empathy to $\theta > 8,$ B will switch to choosing PE2 at the pitch.

What does it mean for the B to invest in economic (synergy) or behavioural (passion) improvements? At a practical level, the authors are acquainted with members of the EBRD private equity team: these members frequently visit their regions of operation to work

extensively with their PEs and Es, coaching them, advising them, and generally working to improve PE/E interactions and practices, enhancing value-creation. Thus, our model suggests that, if the B anticipates their own mentoring ability at the pitch, this may crucially affect B's decision-making.

The traditional view is that Development Banks exist to provide, in addition to finance, a political umbrella for enterprises facing political risk in emerging markets. There is evidence that the EBRD recognises that it does so much more than that! The EBRD recognises the importance of its coaching/mentoring role. On the EBRD website: "Our Know How", it states:

"At the EBRD, we provide more than just finance. We also provide business advice to help small and medium-sized businesses grow, succeed, then grow again, becoming genuine catalysts for their local economies and region. We draw on the know-how of our network of international advisors and local consultants to help transform a wide range of businesses."

At a very practical level, the EBRD, together with the Latvian, Lithuanian, and Estonian Private Equity and Venture Capital Associations are organising training for fund managers and institutional investors to further deepen market know-how and capacity in the financial markets in the Baltics. Our model is important in emphasising the importance of considering both economic and behavioural/psychological/emotional factors in this coaching and training.

It is important to note that the private equity industry itself recognises that the EBRD is a valued investor into emerging market enterprise: The EBRD has won Europe's best Limited Partner of the Year Award from "Private Equity International", the global private equity industry publication. Commenting on the award, the head of the EBRD funds team, Anne Fossemalle emphasises the team-work that exists between the bank, the PE-fund managers, and the entrepreneurs: "The vast majority of our equity funds invest in small and medium-size enterprises and that is money that SMEs in the region urgently need... crucially, fund managers add value to these companies. The funds form a real partnership that helps these businesses to grow... and we help to make the fund managers themselves more institutional. "

5. Conclusion.

We have developed a game-theoretic analysis to consider a development bank's (DB's) investment choices when investing, through the PE-sector, into entrepreneurial ventures in emerging economies. Our model demonstrates that the banks' decisions may be affected crucially by the PE's economic and behavioural characteristics, as well as the bank's own emotional biases. In addition to considering both economic and behavioural characteristics, a second major contribution of our analysis is that we recognise the triple-sided moral hazard problems affecting bank/PE/E behaviour and performance.

Our analysis should be informative for both academic scholars and practitioners. At the academic level, our work forms the basis for future research into development banks' investment choices. Firstly, in terms of theoretical development, we have only considered the B's choice of financier. It would be useful to develop the model to consider the PE's choice of entrepreneur, and also the entrepreneur' choice of PE. As the permutations increase, the model could become very rich. Second, we have focused on the parties' cashflow rights. An important step is to extend the analysis to include control rights. Third, we could extend the behavioural analysis to consider other aspects, such as negative reciprocity/retaliation. Fourth, we could extend the analysis to explicitly consider the effects of market and institutional development in emerging markets. Fifth, we have focused on moral hazard problems. We should develop our analysis to consider the effect of asymmetric information and adverse selection. This is particularly relevant to emerging economies, where entrepreneurial lack of track record and reputation is a key issue. Finally, at the empirical level, we need to be able to access data such that we can test the importance of economic and behavioral factors on the B's decision, and on the resulting performance of the entrepreneurial venture.

Our analysis provides the following practical implications for practitioners working inside Development Banks, such as EBRD, and in PE teams, pitching to the bank.

1. We suggest that Bs, and PEs, need to recognise the importance of both economic and behavioural factors in PE/E relationships and value-creation. This is important for Bs,

in assessing PE-pitches, and also for PEs in presenting themselves at the pitch: it may be as equally important for PEs to present, and for Bs to assess, 'hard' economic skills, and softer, behavioural facets, such as empathy and passion.

2. Further, the bank needs to be objective in assessing the PE: although the bank may be assessing for soft skills, the bank itself must not become empathetic and emotionally biased[14].
3. In assessing the PEs economic and behavioural capabilities at the pitch, it may be important for the bank to consider whether the bank itself can work with the PE and the E 'on the ground' in the region of operation in order to assist/train/coach/mentor the PE and the E to improve PE/E synergy and empathy/passion, in addition to the bank's main role of political risk-mitigation.

Overall, our analysis should provide a framework for scholars and practitioners to analyse the complex economic and behavioral factors affecting the performance of development bank/private equity backed entrepreneurial ventures in emerging economies.

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[14] Indeed, in a practitioner paper, Botelho and Harper (2008) discuss how institutions should formalise their approach to considering both economic and behavioural factors when choosing PE-fund investments. They state that "Most private equity fund investors spend half of their diligence time assessing sponsors' teams .. yet… limited partners view 'people mistakes' as the main cause of underperforming funds …. People mistakes are largely driven by lack of structure and over-reliance on gut feel."

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