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Is innovativeness influenced by proactiveness and risk-taking? Evidence from Poland based on structural equation modelling

Abstract: This article focuses on entrepreneurial orientation in a firm's internationalisation process, which is one of the leading research trends in international entrepreneurship. The objective of the study is to verify the relationship between proactiveness, risk-taking and innovativeness as components of the entrepreneurial orientation of internationalised Polish firms. The article answers the main research question of how proactiveness and risk-taking influence innovativeness as an interrelated three-dimensional construct of entrepreneurial orientation. We present the results of a study based on a stratified sampling of 355 internationalised Polish firms. Structural equation modelling (CB-SEM) demonstrated a positive effect of proactiveness (PROACT) and risk-taking (RISK) on innovativeness (INNO) as an interrelated three-dimensional construct of entrepreneurial orientation. Moreover, the level of proactiveness (PROACT) and risk-taking (RISK) explained 32% of the variation in innovativeness (INNO), which is high in social sciences, including business studies.

Keywords: entrepreneurial orientation; innovativeness; international entrepreneurship; internationalisation of the firm proactiveness; Poland; risk-taking; SEM

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INTRODUCTION

The three-dimensional construct of entrepreneurial orientation (proactiveness, risk-taking, and innovativeness), introduced by Miller (1983) and later by Covin and Slevin (1989), is the most widely used approach in the literature on entrepreneurship (Wach et al., 2018). The three dimensions of entrepreneurial orientation have also become the conceptual essence of international entrepreneurship. McDougall and Oviatt (2000, p. 903) defined international entrepreneurship as a 'combination of innovative, pro-active,

and risk-seeking behavior that crosses national borders and is intended to create value in organizations'. The inclusion of entrepreneurial orientation in the study of the internationalisation process stimulated a new trend of research focussed on the entrepreneurial approach to international business, placing the entrepreneur/firm as the main driving force of internationalisation.

Innovation and innovativeness have been recognised for many years as the basis for the growth of firms and entire economies as well as being crucial determinants for internationalisation (Akbar et al., 2020). Innovativeness, in addition to entrepreneurial orientation itself, is considered part of a firm's strategy and culture (Boojihawon et al., 2007; Dembek et al., 2009). Thus, while most research has focused on examining the different outcomes of entrepreneurial orientation, especially its relationship to various aspects of firm performance, some research has looked at how entrepreneurial orientation can be related to aspects of firm innovativeness (Dembek et al., 2009; Akbar et al., 2020). These studies have shown that there is a strong positive relationship between entrepreneurial orientation and firm innovativeness (Dembek et al., 2009; Benazzouz, 2019). This finding seems clear if we take the three-dimensional concept of entrepreneurial orientation as a whole. However, there have also been studies documenting the positive link between a firm's innovativeness and its strategic attitude, measured as a combination of proactiveness and risk-taking, i.e. the three dimensions are treated separately (Özsomer et al., 1997; Dembek et al., 2009). Since research proves has demonstrated that the effective applicability of these dimensions puts a company ahead of its competitors, we can add that the appropriate relationships between these dimensions of entrepreneurial orientation can also be important for a company (Cámara, 2018; Akbar et al., 2020).

Innovativeness and the introduction of novelty are always associated with risk (Wadood et al., 2022). It can, therefore, be assumed that the innovativeness of firms is influenced by their perception of risk (Sethi & Sethi, 2009). Organisations that take risks more easily may be more innovative. Shalley and Gilson (2004) suggest that the way of taking risks can increase innovation by increasing creativity in the organisation. According to these suggestions, the findings by Calantone et al. (2003) indicate a relationship between risk-taking and the speed of new product development. Research has also shown a positive relationship between proactiveness and innovativeness (Droge et al., 2008; Cannavale & Nadali, 2019; Onwe et al., 2020). Innovation is often associated with exploiting market opportunities or securing market niches (Wadood et al., 2022), and proactivity is an essential element of this process. Dembek et al. (2009) have demonstrated in manufacturing firms that proactivity is associated with radical innovations. Drawing inspiration from the above observations, we conducted a study in the context of internationalisation on a sample of Polish firms.

The objective of the study is to verify the relationship between proactiveness, risk-taking and innovativeness as components of the entrepreneurial orientation of internationalised Polish firms. We assume that this approach may contribute to a deeper understanding of the meaning of entrepreneurial orientation and its dimensions. The research conducted so far has only partially addressed the various dimensions of entrepreneurial orientation. Individual dimensions of entrepreneurial orientation may affect a company's effectiveness in different ways. They may also be related to various aspects of the firms' functioning, and this relationship may vary over time and depending on various variables (Jambulingam et al. 2005; Dembek et al., 2009). Although we are aware

of this, there has been only limited research explaining how entrepreneurial orientation dimensions themselves are interrelated and influence each other.

Therefore, we treat this study as a starting point for research in this direction, focusing first on the relationship between proactiveness and risk-taking in relation to innovativeness. By including the context of internationalisation, we develop the concept of international entrepreneurial orientation, which, according to recent studies (Etemad, 2022), requires empirical validation. Based on a sample of internationalised firms from Poland and their entrepreneurial orientation, we address the following research questions:

- RQ: In what way do proactiveness and risk-taking influence innovativeness as the interrelated three-dimensional construct of entrepreneurial orientation?
- RQ1: Is proactiveness positively related to innovativeness?
- RQ2: Is risk-taking positively related to innovativeness?

The above questions will be investigated using structural equation modelling (CB-SEM) on a research sample of 355 Polish firms.

LITERATURE REVIEW AND PRIOR STUDIES

In recent years, firm-level internationalisation and international business theories have seen significant development. Recent empirical achievements in the theory of firm-level internationalisation have demonstrated that entrepreneurial orientation (EO) is one of the critical success factors that stimulate a firm's internationalisation (Akbar et al., 2020; Głodowska et al., 2019; Kusa, 2020). General entrepreneurship theory states that opportunities are a shared and key link to all entrepreneurial behaviours. This theory refers to recognising or creating opportunities and then evaluating and exploiting them (Li et al., 2020). Expanding into new foreign markets is unquestionably a crucial market opportunity for development and growth. However, internationalisation as a response to a market opportunity proceeds in different ways. The perspective of entrepreneurial orientation and recognition of market opportunities has provided valuable insights into the process of firm-level internationalisation. It has contributed to the co-integration of international business and entrepreneurship approaches. As a result, the concept of international entrepreneurship (IE) has also flourished in this way.

Entrepreneurship is a multi-faceted and ambiguous concept. However, in a broad sense, it is often understood as an entrepreneurial orientation that primarily helps us conceptualise entrepreneurship and apply entrepreneurship theory to international business investigations with greater ease. Żur and Wałęga (2015) note that two parallel terms coexist in the scientific literature on entrepreneurship at the company level, namely corporate entrepreneurship (CE) and entrepreneurial orientation (EO). Zahra (1996) as well as Dess and Lumpkin (2005) have suggested that EO represents a firm's potential entrepreneurial intentions and attitudes, while CE represents the firm's actual entrepreneurial actions. Among many others, Antoncic and Hisrich (2001) have stated that these two constructs are complementary.

According to Onwe et al. (2020), EO refers to rare and non-reproducible firms' assets that include the willingness to take the risk of introducing products that have not been tested, the willingness to innovate, and the willingness to be proactive towards competitors. Implementation of EO in the current research comes down to recognising and understanding the entrepreneurial behaviour of the firm, both in domestic and

international markets (Onwe et al., 2020; Wadood et al., 2022). Therefore, we can assume that EO focuses on specific processes and procedures that are the basis for entrepreneurial decisions, including entrepreneurial processes and subsequent entrepreneurial activities. First, EO can be linked to operational activities that relate to the functioning and decision-making of entrepreneurship. Second, EO can refer to specific methods and ways to develop strategic initiatives that decision-makers use to implement the firm's overall objectives and develop its business model to achieve a strategic market advantage.

ENTREPRENEURIAL ORIENTATION: PROACTIVENESS, RISK-TAKING AND INNOVATIVENESS

The literature offers many definitions of EO, and various researchers have presented their observations on the subject (Basso, Fayolle, & Bouchard, 2009). Nonetheless, they have one thing in common: they treat entrepreneurship as a phenomenon at the company level. Miller (1983), and later Covin and Slevin (1989), introduced the three-dimensional construct of EO, represented by features of the firm such as (i) proactivity, (ii) innovativeness, and (iii) risk-taking. Lumpkin and Dess (1996) proposed a multidimensional construct consisting of five dimensions, namely (i) proactivity, (ii) innovativeness, (iii) risk-taking, (iv) competitive aggressiveness, and (v) autonomy. Moreover, Covin and Lumpkin (2011) maintained that these two constructs must be considered different and independent perspectives, rather than competing ones. Consequently, Anderson et al. (2015) perceive EO through two non-interchangeable dimensions: (i) entrepreneurial behaviour and (ii) managerial attitudes towards risk.

In the more recent literature, we can also find an explanation that EO has no dimensions and is a one-dimensional complex construct (Covin & Wales, 2012; Wach, 2017; Bhatt et al., 2020). Some researchers have speculated that, according to the above, we can treat EO as a certain feature of the firm that at the same time acts autonomously and proactively, takes risks by acting aggressively, and is innovative to take advantage of future market opportunities (Al-Mamary & Alshallaqi, 2022). This approach is aligned with the aim of combining strategic and project management principles to achieve competitive advantages (Kostiukevych et al., 2020). However, the most widespread and utilised is the three-dimensional construct of EO (Onwe et al., 2020; Semrau, Ambos, & Kraus, 2016; Bhatt et al., 2020). Most empirical studies use the EO measures proposed by Miller (1983) and further developed by Covin and Slevin (1989), which applies a three-dimensional construct of EO with nine items and evaluates them on a 7-point Likert scale.

One of the components of EO allows organisations to be clearly categorised as being proactive or reactive. Proactiveness is the company's ability to respond to business opportunities in a competitive and turbulent environment, which is a desirable feature of firms today as it enables them to take advantage of almost unbelievable opportunities (Al-Mamary & Alshallaqi, 2022). It is the ability to prepare integrated and dynamic adaptations to new products/services and market circumstances. Reactive action is the opposite of this as it simply occurs *ex-post*. In other words, proactiveness refers to a firm's efforts to take advantage of new opportunities, which should be understood as the proper identification of future needs and their satisfaction (Wach et al., 2018).

Risk-taking refers to a company's tendency and willingness to engage in risky ventures with uncertain outcomes (Al-Hakimi et al., 2020). According to Al-Mamary and Alshallaqi (2022), risk tolerance and entrepreneurial spirit are strongly linked. Akbar

et al. (2020) believe that risk-taking involves taking advantage of opportunities in unpredictable situations and investing significant resources despite little knowledge of the new situation. Risk-taking can also be seen as the willingness of managers to commit resources in the face of costly failure (Teles & Schachtebeck, 2019). Meekaewkunchorn et al. (2021) found that, in general, innovativeness, proactiveness, and risk-taking ability exert a significant positive influence on the business strategy of firms. Innovativeness is based on creativity and the willingness to experiment in introducing new products (Wach et al., 2018). In this regard, it is important to support entrepreneurial employees and a conducive working environment to undertake entrepreneurial initiatives (Piecuch & Szczygieł, 2021). Innovativeness can be understood as a firm's tendency to actively support the creation and implementation of innovative insights, experiment with alternative strategies, and improve current products or services (Al-Mamary & Alshallaqi, 2022).

It is worth noting that when elaborating on the theoretical three-dimensional construct of EO, the strict requirement for firms to demonstrate a high level of each dimension has been significantly relaxed (Wach, 2017). Lumpkin and Dess (1996) and Kreiser et al. (2002) observed that different levels of the three dimensions could equally shape the EO of a particular firm. There are also some implications between the individual components of entrepreneurial orientation.

INTERNATIONAL ENTREPRENEURIAL ORIENTATION

Knight (1997), one of the first pioneers in EO research, examined the EO of companies operating in diverse cultural contexts across various countries. Covin and Miller (2014) suggest that the concept of international entrepreneurial orientation (IEO) should be considered in relation to EO and IE. These definitional issues resulted in an in-depth study of the IEO phenomenon by Covin and Miller (2014). EO has been one of the leading research topics in the field of entrepreneurship for more than three decades, while its use in international business research is much younger. Kuivalainen, Sundqvist and Servais (2007, p. 253) note that *'both home-country and an international entrepreneurial orientation (EO and IEO, correspondingly) could be seen as antecedents that explain growth strategy and performance differences in firms'* in the international context. The essence of IEO in the literature presented over the last years is shown in Table 1. Most researchers believe that IEO uses the three-dimensional concept of EO (Dai, Maksimov, Gilbert & Fernhaber, 2014; Gupta & Gupta, 2015; Raats & Krakauer, 2020), complementing the international context of entrepreneurship.

Table 1. Selected definitions of IEO in chronological order

Definition	Author
IEO 'reflects the firm's overall proactiveness and aggressiveness in its pursuit of international markets'.	(Knight, 2001, p. 159)
IEO reflects 'the firm's overall innovativeness and proactiveness in the pursuit of international markets. It is associated with innovativeness, managerial vision and proactive competitive posture'.	(Knight & Cavusgil, 2004, p. 129)
IOE is 'a set of attributes commonly acknowledged as helpful for overcoming obstacles in the internationalization process'.	(Jones & Coviello, 2005)
IOE 'refers to the behavior elements of a global orientation and captures top management's propensity for risk taking, innovativeness, and proactiveness'.	(Freeman & Cavusgil, 2007, p. 3)

IOE is 'a set of behaviors associated with the potential creation of value, which manifest themselves as proactive and innovative methods, risk taking activity, autonomous actions, and an emphasis on outperforming rivals, all variously aimed at discovering, enacting, evaluating, and exploiting opportunities across national borders'.	(Sundqvist, Kylaheiko, & Kuivalainen, 2012, p. 205)
'IOE is not treated as a construct distinct from EO. Rather, "international" is simply a context in which the EO phenomenon is explored'.	(Covin & Miller, 2014, p. 14)
'IEO as the processes that firms use to exploit entrepreneurial opportunities to create new products and services abroad'.	(Boso et al., 2017, p.6)
'IEO prompts SMEs to adopt innovative, risk-taking and proactive behaviors in international markets. For instance, SMEs with high levels of international entrepreneurial orientation tend to seek innovative products and services targeting international markets, view foreign markets as opportunities rather than risks and scout for business opportunities and partners abroad'.	(Jin & Cho, 2018, p. 588)
'IEO is likely to be (i) more complex than its domestic counterparts, (ii) requires different capabilities, flexibilities and resources, (iii) also requires innovativeness in adapting to the prevailing conditions in different foreign markets for meeting their requirements entrepreneurially, (iv) relies heavily on nearly indispensable innovations of different nature and magnitudes according to the challenges facing the entrepreneurial agent (firm or individual), and finally (v) depends on complementary collaborations without which optimal, if not maximal, success is unlikely'.	(Etamad, 2022, p. 357–358)

Source: own elaboration based on Wach (2015), Raats and Krakauer (2020), Jin and Cho (2018)

OVERVIEW OF PRIOR STUDIES

Knight (2001) emphasises that the three-dimensional construct of international entrepreneurial orientation is the primary success determinant of a firm's international performance. Strategic behaviour theory is particularly essential for firms expanding into international markets as various environmental factors pose particular challenges for entering firms. Two additional factors supporting a firm's international performance are (i) preparing for internationalisation by conducting market research or committing resources to international activities and (ii) sourcing technology to acquire more technologies that will enhance the firm's ability to compete in international markets by implementing innovative products and actions.

According to some researchers, a similar and complementary concept to IEO is international entrepreneurial culture (IEC). Dimitratos and Plakoyiannaki (2003) suggested that international entrepreneurial culture encompasses six dimensions: (i) the market orientation towards international activities, (ii) the learning orientation focused foreign markets and the alertness to opportunities that exist in these markets, (iii) the innovation propensity, (iv) the risk attitudes in pursuit of new opportunities in foreign markets, (v) the networking orientation, (vi) the motivation orientation to explore and exploit opportunities in foreign markets.

In previous studies, the theoretical basis for considering EO in the internationalisation process is the resource-based view (RBV) or contingency theory (Akbar et al., 2020; Raats & Krakauer, 2020; Jim & Cho, 2018). According to Alvarez and Barney (2017), an innovative firm will not be entrepreneurial if it does not take risks or is not sufficiently proactive towards competition and the environment because it will not be able

to maintain such an advantage without policies and procedures that allow it to fully use the competitive potential of its resources and opportunities (Alvares & Barney, 2017; Raats & Krakauer, 2020). The research conducted so far has confirmed the vital role of entrepreneurial orientation in the process of internationalisation. In one of the earliest such studies, Florida (1997) demonstrated that entrepreneurial orientation determines a firm's ability to penetrate new international markets in the search for development opportunities for innovative products.

Recent research has also shown that entrepreneurial orientation impacts internationalisation, including digital internationalisation. Digital technologies are of particular importance for the risk-taking dimension and innovativeness. These studies explain that digital internationalisation is riskier and, therefore, its effectiveness may be determined by a firm's level of entrepreneurial orientation. Firms with a higher risk-taking capacity may be more successful at internationalising online (Katsikeas et al., 2020). Innovation is also very important here. Drawing on the entrepreneurial orientation literature, Ipsmiller et al. (2022) suggest that companies with a higher level of entrepreneurial orientation are more likely to take advantage of internationalisation opportunities. They found that entrepreneurially oriented firms will be more likely to invest in active internationalisation websites. Etemad (2015) believes that entrepreneurial orientation is the most important factor in the effective operation of companies on an international scale.

Moreover, Etemad (2022) stated a few years later that even though entrepreneurial orientation has been thoroughly researched in the context of internationalisation, the current environmental changes require a new look at these aspects, especially since the conditions of internationalisation are dynamically changing under the influence of technological development. Current conditions, such as deglobalisation and re-globalisation in various forms and a crisis environment (COVID-19 pandemic), as well as the occurrence of unexpected events, make the impact and dimensions of entrepreneurial orientation recognised so far incomplete, according to Etemad (2022). A richer and more functional approach is required. The key idea is that an entrepreneurial agent (company or individual) is expected to approach its entrepreneurial projects in an autonomous, innovative, and proactive manner with a certain competitive aggressiveness. In doing so, the entrepreneurial agent should be prepared to tolerate a certain level of risk in order to achieve the project objectives within the associated context(s) and environment(s). Based on this, Etemad (2022) proposes an alternative approach that is more diversified and holistic: business network and collaborative orientation, environmental or socio-cultural orientation, export marketing or international marketing orientation, and international entrepreneurship capital.

RESEARCH METHODOLOGY

Research Sample

Our study utilised a quantitative design, and we selected the sample of companies by compiling a list of those registered in Poland according to the REGON register. For the sample selection, we used the following random stratification criteria: (i) only internationalised firms, (ii) firms of all sizes but with a small share of microenterprises (as the least internationalised) and large enterprises (as the smallest group in the population), both

comprising up to 10–15%, while small and medium enterprises should make up to 70–80% of the final sample.

Out of 7,100 companies selected for further study, 355 positively answered and agreed to participate in the survey, meaning a response rate of 5%. However, 3,787 companies were unable to be reached as the database included the wrong contact information. Thus, the actual response rate was 10.7%. We collected questionnaires using the CATI technique (computer-assisted telephone interview) conducted by a professional market research agency. The survey questionnaire included seven thematic parts: (i) business characteristics, (ii) entry modes and scope of internationalisation, (iii) internationalisation patterns and strategies, (iv) resources and competencies, (v) domestic and foreign business environment, (vi) entrepreneurial orientation, and (vii) entrepreneur characteristics.

Variables

For our survey, we used a three-dimensional construct of entrepreneurial orientation originally defined by Miller (1983) and further developed by Covin and Slevin (1989) and Covin and Miller (2014). In addition to the EO construct, we employed three sub-constructs, namely (i) innovativeness (INNO), (ii) proactiveness (PROACT), and (iii) risk-taking (RISK). Altogether, we used nine detailed variables (see Table 2).

Statistical Tools

The methodology utilised in the study was structural equation modelling (SEM), which is typically used to explain multiple statistical relationships simultaneously by visualising and validating the model. This method combines factor analysis and multiple regression analysis (Dash & Paul, 2021), enabling the testing of hypotheses concerning relationships between observed and latent variables. Latent variables are not measured directly, and their values are estimated from the observed variables. It enables testing indirect and direct relationships between large groups of variables. In the literature, two basic SEM methods are commonly used. The first is covariance-based analysis (CB-SEM), while the second is based on the partial least square (PLS-SEM) method (Hair & Alamer, 2022). In the CB-SEM method, latent variables are reflective rather than formative constructs, meaning that the observed indicators are the effect of the latent variable that manifests itself in their form. PLS-SEM, on the other hand, enables formative constructs, where observed indicators are causes of the level of the latent variable (Kacprzak, 2018).

PLS-SEM allows the analysis of variables whose distribution deviates from the normal distribution, whereas CB-SEM requires more stringent assumptions. The basis for using the estimators is the assumption of a multivariate normal distribution of the observed variables. Among CB-SEM estimators, the literature favours the maximum likelihood (ML) method because of its consistency in estimating model fit indices (Hair & Alamer, 2022). However, this method can only be used for small deviations from a normal distribution. When the distribution of observed variables does not meet this condition, the asymptotically distribution-free (ADF) or generalised least squares (GLS) method should be used to estimate the model. However, a large sample size of more than 2,500 observations is required for the GLS method, whereas a smaller sample size of at least 200–500 observations is needed for the ADF method (Konarski, 2014).

Using latent variables first requires constructing a measurement model to determine the interaction strength of the observed variables. The next step is constructing a structural model that captures the strength and direction of the interaction of the latent variables. The measurement model requires reliability analysis of the observed variables, which accounts for the value of individual latent variables. Measurement reliability is determined by Cronbach's alpha coefficients and composite reliability. The value of composite reliability (CR) coefficients for individual latent variables should be more than 0.70. If this is not the case, those observed variables with the smallest factor loadings should be removed from the model to achieve greater internal consistency of latent variables.

To assess the goodness of fit of an EB-SEM model, several indicators are usually adopted (Kacprzak, 2018; Dash & Paul, 2021). Foremost among them is the Chi-square upon the degree of freedom (CMIN/df) relationship. CMIN/df measures the discrepancy between the observed and theoretical variance-covariance matrix. An index value of less than 5 is considered a measure of good model fit. The goodness-of-fit index (GFI) indicates what percentage of the variation in the variance-covariance matrix is explained by the model. GFI values range from 0 to 1. A well-fitted model is typically indicated by a GFI value above 0.90. Root mean square error of approximation (RMSEA) is a measure of the discrepancy between the theoretical variance-covariance matrix and that obtained from the sample, adjusted for the number of degrees of freedom. RMSEA is considered the best informative indicator of fit. A satisfactory model fit should have an RMSEA value of less than 0.08, while a good fit requires a value of less than 0.05. The comparative fit index (CFI) compares the fit of a model with an independent model in which all variables are assumed to be uncorrelated. In a well-fitted model, the CFI value should exceed 0.90.

RESULTS AND DISCUSSION

Using the CB-SEM model and SPSS Amos 26 software, we assessed the impact of two dimensions of entrepreneurial orientation (EO) – proactiveness and risk-taking – on the third dimension of EO, innovativeness. The EO dimensions are reflective latent variables that manifest their presence through observed indicators. We determined the values of observed indicators based on managers' responses to three questions for each EO dimension. Managers were asked to indicate the degree (on a 7-point Likert scale) to which they agree or disagree with the statements listed in Table 2. We estimated the model for data from 355 internationalised Polish firms.

Table 2. Observed indicators of the dimensions of entrepreneurial orientation

Latent variable	Observed variable
Innovativeness (INNO)	Managers prefer strong emphasis on R&D, technology leadership and innovation (INNO1)
	The company has launched a very large number of new product lines or services over the past five years (INNO2)
	Changes in product or service lines have typically been significant over the past five years (INNO3)

Proactiveness (PROACT)	The company typically initiates activities to which competitors then respond (PROACT1)
	The company is very often a leader in introducing new products/services, management techniques, or technologies (PROACT2)
	The company usually adopts a very competitive position of running ahead of competitors (PROACT3)
Risk-taking (RISK)	Managers have a strong inclination towards high-risk projects (RISK1)
	Managers believe that bold and large-scale opportunity discovery is essential to achieving company goals (RISK2)
	Under conditions of uncertainty, decisions are made boldly and aggressively (RISK3)

Source: own elaboration

We first determined whether the observed variables met the assumption of a multivariate normal distribution. Table 3 shows the results of this test. A multivariate normal distribution requires that kurtosis takes the value of 3, and the test statistic (CR) is in the interval (-2;2). The obtained results of 27.127 and 18.162, respectively, indicate that the variables did not have a multivariate normal distribution. This means that the asymptotically distribution-free method (ADF) should be used to estimate the model.

Table 3. Assessment of normality

Variable	min	max	skew	CR	kurtosis	CR
RISK1	1.000	7.000	-0.139	-1.070	-0.245	-0.942
RISK2	1.000	7.000	-0.225	-1.730	-0.491	-1.890
RISK3	1.000	7.000	0.069	0.529	-0.325	-1.249
PROACT1	1.000	7.000	-0.254	-1.951	-0.411	-1.579
PROACT2	1.000	7.000	-0.091	-0.696	-0.777	-2.989
PROACT3	1.000	7.000	0.152	1.171	-0.940	-3.616
INNO1	1.000	7.000	-0.158	-1.213	-0.897	-3.451
INNO2	1.000	7.000	-0.141	-1.083	-0.927	-3.565
INNO3	1.000	7.000	-0.572	-4.397	-0.803	-3.089
Multivariate					27.127	18.162

Source: own calculations

The measurement model based on this method indicates the values of factor loadings (observed variables) in the construction of latent variables. The resulting values of Cronbach's alpha coefficients and composite reliability (CR) are shown in Table 4. The data in Table 4 indicate that the composite reliability (CR) values for the INNO and PROACT variables were too low (below 0.70). Therefore, the observed variables INNO1 and POACT3, which had the lowest factor loadings, were removed from the model. The remaining variables were used to create a structural model, which is shown in Figure 1.

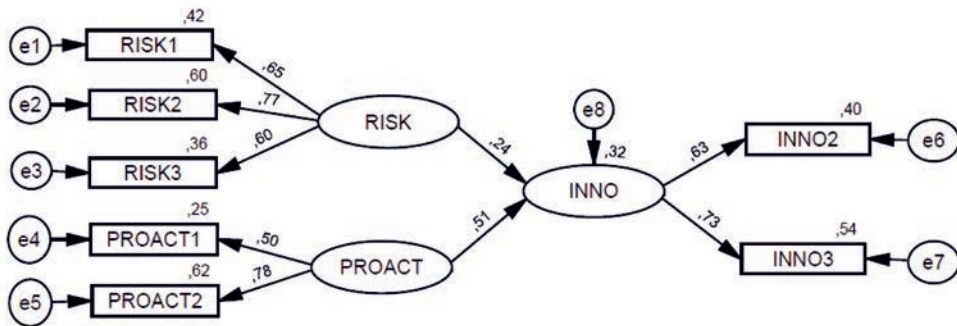
Table 4. Estimated parameters of the confirmatory factor analysis and composite reliability

Latent variable	Observed variable	Factor loadings	Errors	Composite reliability
INNO	INNO1	0.237	0.944	0.586
	INNO2	0.662	0.562	
	INNO3	0.755	0.430	

PROACT	PROACT1	0.647	0.581	0.585
	PROACT2	0.750	0.438	
	PROACT3	0.261	0.932	
RISK	RISK1	0.728	0.470	0.748
	RISK2	0.765	0.415	
	RISK3	0.620	0.616	

Source: own calculations

Figure 1. Effect of proactiveness and risk-taking on innovation



Note: all coefficients are standardised

Source: own calculation

The standardised path coefficients (β) seen in Figure 1 and Table 5 suggest a positive effect of *proactiveness* (PROACT) and *risk-taking* (RISK) on *innovativeness* (INNO). We can, therefore, positively answer the main (RQ) and two detailed (RQ1 and RQ2) research questions. The unstandardised values of path coefficients (b) shown in Table 5 have interpretable. These values can be used because all observed variables were assigned the same 7-point Likert scale. The path coefficients indicate by how many scale units the value of the explanatory variable (INNO) will change if the values of the explanatory variables (RISK and PROACT) change by one unit. A one-point higher level of proactiveness (PROACT) explained a 0.73-point higher level of innovation (INNO). In contrast, a one-point increase in risk-taking (RISK) explained a 0.29-point higher level of innovativeness (INNO) on the scale. Both explanatory variables were statistically significant ($p < 0.05$). The R2 value (0.32) means that the level of proactiveness (PROACT) and risk-taking (RISK) explain 32% of the variation in innovativeness (INNO). In the social sciences, this represents a relatively high value as levels as low as 10% are usually considered acceptable, while those exceeding 20% are considered high (Hair, et al., 2012).

Table 5. Path coefficients of the model and their level of significance

Dependent variable	Independent variable	β	b	P
INNO	RISK	0.24	0.29	0.017
	PROACT	0.51	0.73	<0.001
R ²		0.32		

Source: own calculations

The structural model fit measures confirm the validity of the statistical inference as they take on acceptable values. CMIN/df was 3.121 and RMSEA was 0.077, while GFI and CFI values exceeded the threshold value of 0.90.

CONCLUSIONS

International entrepreneurship is emerging as a flourishing approach to business internationalisation, examining many aspects of international business from an entrepreneurial perspective. However, there are still many aspects of international business, even those well-established in the theory of entrepreneurship, that remain unexplored in a global context (international entrepreneurship). The above arguments highlight that entrepreneurial orientation is one of the leading and dominant research topics in international entrepreneurship.

Our SEM calculations demonstrated a positive effect of *proactiveness* (PROACT) and *risk-taking* (RISK) on *innovativeness* (INNO) as the interrelated three-dimensional construct of entrepreneurial orientation. Moreover, the level of proactiveness (PROACT) and risk-taking (RISK) explained 32% of the variation in innovativeness (INNO), which is considered high in social sciences, including business studies.

Like all empirical studies, the one performed in the present study is not without some significant limitations. First, the research sample was not representative. Hence, it is impossible to generalise the results over the entire population of Polish firms. Second, the study was static, and future research should aim to develop longitudinal research designs. Third, to address the characteristics of the owner-entrepreneur, a study examining the intentions of the entrepreneur and their predecessors at some point would be highly valuable. Moreover, it would be beneficial to apply the international entrepreneurial orientation (IEO) construct, instead of the well-investigated entrepreneurial orientation (EO) construct.

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