Master Thesis Strategic Management

Board performance: how intense are you?

Board gender diversity and board performance: the role of affect intensity

Radboud University

Nijmegen School of Management

Business Administration

Strategic management

Author:	Sietske Roelofs
Student number:	1029458
Supervisor:	dr. K.F. Van den Oever
2nd examiner:	dr. ir. G.W. Ziggers

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Institutional information

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Abstract

Previous literature has proven that board gender diversity affects performance. However, after years to decades of research, the underlying mechanisms are still not revealed yet. Therefore, this study aims to investigate the intervening role of affect intensity in the board gender diversity – board performance relationship. Previous research has theorized that women experience emotions more intense than men, which implies the positive effect of a higher level of board gender diversity on affect intensity. Also, the positive effect of affect intensity on decision-making and thus board performance is theorized before. However, this study is the first to empirically investigate these two theorized relationships combined into an intervening relationship, as the literature suggests that board gender diversity influences firm performance. Here, assumed is that this literature could also be applied to board performance. Nonetheless, the exact underlying mechanisms are not explained yet. Therefore, scholars have recommended to focus research on board (gender) diversity and performance on the intervening mechanisms. Consequently, this study answers to this request by investigating the role of affect intensity in order to help completing the large puzzle of the still unclear underlying mechanisms, by bringing in this new perspective, adding a social-psychological aspect to this relationship.

The setting of this study encompasses the Dutch water management authorities since these authorities are obligated to be transparent, which means data regarding the board compositions, meeting notes, and meeting videos can be found via publicly available sources. Moreover, as the boards consist of approximately 30 people, this makes the authorities a particularly interesting case to investigate, since larger teams have more diversity potential. The data on Dutch water management authorities are examined in a panel data analysis using regression analyses. Board gender diversity is measured by the calculated diversity-level. The levels of affect intensity have been measured using the Microsoft Azure Computer Vision Application Program Interface (API) algorithm. Board performance is measured counting the quantitative number of motions and amendments discussed during a particular meeting.

This study has found no significant mediating effect of affect intensity in the board gender diversity – board performance relationship. Moreover, no significant direct relationship of board gender diversity with board performance has been detected in the main analysis. However, a robustness check excluding some observations did find a significant direct relationship, indicating that this relationship is sensitive for measurement methods. Nevertheless, the mediating role of affect intensity thus could not be claimed by this study. Future research should attempt to further explain this relationship, since underlying mechanisms are still unexplained. Possibly, other intervening variables can explain the mechanisms that board gender diversity evokes. Last, this study can recommend the Dutch water management authorities to stimulate women's representation within the board, based on the significant findings of mentioned robustness check. Perhaps, the authorities could both focus more on searching and inviting women to run for board positions and at the same time focus more on creating and/or maintaining a gender supportive climate.

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1 – Introduction

The relationship between board gender diversity and board performance has been extensively researched before. However, findings on the effects remain inconclusive (Hoobler, Masterson, Nkomo, & Michel, 2018), resulting in a relationship of which the underlying mechanisms are still unclear. To gain clarification on these mixed results, multiple researches have suggested that intervening mechanisms should be examined to find out what variables can affect the relationship between board diversity and performance (Gabrielsson & Huse, 2004; Hoobler et al., 2018; T. Miller & del Carmen Triana, 2009; Milliken & Martins, 1996; Zona & Zattoni, 2007). Zona and Zattoni (2007) describe these intervening mechanisms as "*the black box*": the intervening processes in the relationship between board diversity and performance. These intervening processes are considered as very important to investigate as these will expand and refine knowledge on what makes boards perform better (Forbes & Milliken, 1999), as there, after years to decades of research, still is a big literature gap regarding this "*black box*".

To explain the relationship between board gender diversity and performance, Hoobler et al. (2018) describe two key reasons used to justify the relationship between the leadership of women and performance: women's unique contributions and gender supportive climates. First, they explain that females possess leadership styles that are one of a kind and that they offer more various dynamics to leadership in comparison to males, which brings in heterogeneity to the board when boards are more diverse in terms of gender (Hoobler et al., 2018). Second, gender supportive climates will lead to organizations being conducive to women occupying leadership roles, ensuring that boards make use of each member's unique contributions (Hoobler et al., 2018). Both these mechanisms result in better decision-making and thus board performance, as the combination of different perspectives, skills, knowledge and experiences could lead to an increase of high quality decisions and thus the board's performance as a whole (Ali, Ng, & Kulik, 2014; Bear, Rahman, & Post, 2010).

Previous literature on board diversity usually conforms to two common distinctions: the observable (demographic) and the non-observable (cognitive) characteristics (Erhardt, Werbel, & Shrader, 2003; Milliken & Martins, 1996). Gender, age, ethnicity and race are examples of observable diversity (less job related) and knowledge, education, and perception are examples of non-observable diversity (more job related) (Boeker, 1997; Erhardt et al., 2003; Jackson, 1991; Jehn, Northcraft, & Neale, 1999; Kilduff, Angelmar, & Mehra, 2000; Maznevski, 1994; Milliken & Martins, 1996; Pelled, 1996; Watson, Johnson, & Merritt, 1998; Zona & Zattoni, 2007). In addition, several researches have suggested that it is of importance to consider differences that could be less observable but sometimes are not job related as well, like personality, value, and attitude differences (Bowers, Pharmer, & Salas, 2000; Harrison, Price, & Bell, 1998; Jehn et al., 1999).

Investigating the effects of board gender diversity, differences between women and men are of main interest. In addition, the recommendation to take into account differences such as personality, attitudes, and values leads to the impulse of incorporating social-psychological differences between

genders into the effect of board gender diversity on board performance, to add a new perspective. As boards can be seen as information-processing groups (Boivie, Bednar, Aguilera, & Andrus, 2016) processing information that is affectively loaded (Forgas, 1995), boards are thought to influence relevant outcomes such as performance. Affect can be seen as a common concept that encompasses people's states of feelings, expressed in emotions and moods (Delgado-García & De La Fuente-Sabaté, 2010). Affect consists of its intensity and valence (kind of feeling, such as happy/sad). As affect expressed with greater intensity leads to greater amounts of attention, messages with more intense affect are transferred with more power as it expresses the message with greater clarity and accuracy in comparison to messages with less intense affect (Barsade, 2002). Here, previous research claimed that people experiencing affect with more intensity, achieve a higher performance in decision-making (Seo & Barrett, 2007), and thus board performance (Ali et al., 2014; Bear et al., 2010).

In relation to gender differences, females are generally classified as being the gender that is more emotional, as they experience a higher level of affect intensity compared to males (Fujita, Diener, & Sandvik, 1991; Grossman & Wood, 1993; Larsen & Diener, 1987). An explanation is that a typical female is characterized as affectively reactive, careful with feelings of herself and others, and emotionally unstable, in contrast to a typical male who is considered to be non-excitable, stoic, and emotionally stable (Grossman & Wood, 1993). In addition, having more women in a board leads to affective states (i.e. emotions and moods) being exchanged and hence distributed to other members of the board to shape the board's affective composition, according to Kelly and Barsade (2001). This process is influenced by affect intensity, as expressions with greater intensity lead to more clear and accurate communication (Barsade, 2002).

Taking the theorized effects of affect intensity on board performance and the gender differences together, affect intensity could be a mechanism explaining the relationship between board gender diversity and board performance, leading to this study being the first in combining these two theorized effects into an intervening relationship.[1] Therefore, investigating this potential mechanism will contribute to the currently big literature gap regarding the "*black box*", as it will add a new, little piece to the large puzzle of the underlying mechanisms of the board gender diversity – board performance relationship. This new perspective, the intervening mechanism of affect intensity, brings in a social-psychological aspect within decision-making in boards, which has never been incorporated in studies on large scale before. Therefore, this study will enrich the board gender diversity and board performance literature by bringing in this new perspective. Here, results of this study's analyses will contribute to the big literature gap regarding the "*black box*" and give guidance to broaden or sharpen the literature on the effects of board gender diversity on affect intensity as well as affect intensity on board performance. In addition, the findings will contribute to determine boundary conditions to existing literature and come

[1] Although affect consists of two concepts, this study is focused on affect intensity only as (e.g. a high level of) affect intensity has a stronger appearance than valence. Also, another student focuses on valence in a similar study on the same dataset. This consideration is made together with the supervisor.

up with suggestions for further research to enrich the literature on this new perspective of affect intensity within boards even more, adding up to the findings of this study. Combining the theorized effect of gender diversity on affect intensity and effect of affect intensity on performance, this study's central question is as follows:

'*What is the influence of board gender diversity on board performance and does affect intensity (partially) intervene this relationship*?'

To conduct research on this topic, the boards of directors of Dutch water management authorities are investigated. As these organizations are part of the public sector, they are obliged to publish information about their governance and performances openly, resulting in online databases with a lot of information. Most important, with regard to this study, are the publicly available videos of board meetings, which allows investigation on the board's expressed affect intensity. In addition to this, the water management authorities' boards typically consist of approximately 30 persons and therefore have more potential for diversity because of this size (Bantel & Jackson, 1989), which makes these authority's boards interesting for research purposes with regard to (gender) diversity.

This study is divided into three sections. First, in the theoretical background section, an extensive literature review on previous literature and findings will be elaborated on, leading to the construction of three hypotheses. Second, in the methodology section, this study's sample, variables, data, method of analysis, and research ethics are described. Thereafter, results of the analyses are described and discussed. Last, the contributions, implications and limitations of this study are described extensively and suggestions for further research will be provided in the discussion and conclusion.

2 – Theoretical background and hypotheses

2.1 Boards and their functions

Boards can be seen as information-processing groups (Boivie et al., 2016). Hinsz, Tindale, and Vollrath (1997) define information processing as "a set of related processes that occur when information is taken in, transformed, and then used to produce output of some kind" (Boivie et al., 2016, p. 5). This process has been examined at several empirical levels, including the individual, group, and organization (Boivie et al., 2016), resulting in that boards are interpreted as multi-level information-processing groups (Dalton & Dalton, 2011). In order to work properly, the board's members have to individually gather information on the decisions taken by the Chief Executive Officer (CEO) and the top management team (TMT), review this information to determine if it is in the organization's best interests or not, discuss the decision with other board members, and then determine how the outcomes of the collective decision-making process will be implemented in the collective (Boivie et al., 2016).

Literature discusses three board functions: continued monitoring, resource provision, and punctuated event intervention (Boivie et al., 2016). Trough engagement in these functions, boards are usually thought to affect specific organization outcomes such as business policies, management selections, and financial results (Boivie et al., 2016), as board members' skills and expertise affect the monitoring and resource functions' effectiveness (Hillman & Dalziel, 2003).[2]

The monitoring function includes supervising the decisions made by the TMT in the operation of the organization (Jensen & Meckling, 1979), mostly via alignment of executive interests (Bhagat, Brickley, & Lease, 1985), or by direct confirmation of a decision (Baysinger & Hoskisson, 1990). Conversely, resource provision includes providing admission to important resources incorporating guidance to executives and engaging in decision-making processes on how to run the organization efficiently (Hillman & Dalziel, 2003; Westphal, 1999). Lastly, punctuated event intervention incorporates taking quite uncommon but impactful decisions, like dismissal of executives (Mizruchi, 1983), insolvencies, restatements of profit, attempts at takeovers, and even more that appear to have a discreet start and ending (Boivie et al., 2016).

As boards execute multiple functions, boards can consist of different (groups of) people which may differ from each other in all possible ways. According to Van Knippenberg and Schippers (2007), diversity in work groups (i.e. boards) can have both positive and negative effects on group processes and performance. Diversity in a work group refers to the level of divergences between the members of that group (i.e. board) (Van Knippenberg & Schippers, 2007). As diversity in work groups can affect performance both positively and negatively, questions arise about the underlying mechanisms and the

[2] This study assumes that this effect on organization outcomes (i.e. performance) will also hold for the effect on board performance, as the latter is a result of decision-making (Ali et al., 2014) and thus the board's functioning of their roles (Hillman & Dalziel, 2003), influencing the organization's outcomes and thus performance (Boivie et al., 2016).

manageability of these effects (Van Knippenberg & Schippers, 2007). Usually, diversity is described as variations in any individual aspect that might contribute to the belief that someone else differs from oneself (Jackson, 1991; Triandis, Kurowski, & Gelfand, 1994; K. Y. Williams & O'Reilly III, 1998).

To discuss how variety in a work group influences the group's processes and their performance, previous research has been primarily focussed on two perspectives: the information/decision-making perspective and the social categorization perspective. As this study is focussing on board gender diversity, next paragraph will elaborate more on the relationship between board gender diversity and board performance, using and explaining those two perspectives.

2.2 Board gender diversity and performance

A large body of research exists where the contribution of women in board of directors is examined. Hoobler et al. (2018) describes two key reasons used to justify the relationship between the leadership of women and performance: women's unique contributions and gender supportive climates. First, multiple theories explain that females possess leadership styles that are one of a kind and that they offer more various dynamics to leadership in comparison to males (Hoobler et al., 2018). This can be connected with the information/decision-making perspective mentioned before, emphasizing the impact of diversity in work groups (i.e. boards) due to a wider array of perspectives, task-relevant knowledge, expertise, ideas, abilities, and skills (Adams & Ferreira, 2009; Amason, 1996; Milliken & Martins, 1996; Shehata, Salhin, & El-Helaly, 2017; Van Knippenberg & Schippers, 2007). This provides more diverse boards with more various resources that can be useful to tackle non-repetitive difficulties as constructive debates and exchange of comments can help boards to more effectively perform their intellectual tasks (Zona & Zattoni, 2007), and sets the stage for preventing boards heading to premature agreements on concerns that need to be thoroughly examined (Van Knippenberg, De Dreu, & Homan, 2004; Van Knippenberg & Schippers, 2007). As a result, diversity may help groups (i.e. boards) reach higher quality decisions (Amason, 1996; Van Knippenberg & Schippers, 2007). However, multiple studies claim that diversity within boards arises conflicts that have a negative influence on performance (Arena et al., 2015; Hambrick, Cho, & Chen, 1996; Smith, Smith, & Verner, 2005). These conflicts are the consequences of having a greater variety of opinions, critical questions, and disagreements, resulting in an increased decision-making time (Hambrick et al., 1996; Midavaine, 2016; Smith et al., 2005; Triana, Miller, & Trzebiatowski, 2014). Several mechanisms explaining women's unique leadership styles will be elaborated on.

First, while the monitoring function is claimed to be one of the most important functions for an organization (Hillman & Dalziel, 2003), Erhardt et al. (2003) did find support for a positive influence of diversity in terms of gender on the board's control (i.e. monitoring) task and performance. Following the agency theory (Jensen & Meckling, 1979), Hoobler et al. (2018) state that females are laymen that can increase organizations' decision-making processes. The theory focuses on the need for

independence between the TMT and board, and the intractability of conflicting interests (Dalton, Hitt, Certo, & Dalton, 2007) that is the result of dividing ownership and control within an organization (Fama & Jensen, 1983) to enhance their group and shared task performance, and as a result, firm (i.e. board) performance (Luciano, Nahrgang, & Shropshire, 2020). Adams and Ferreira (2009) have found that boards will gain independence when they are more diverse and therefore will increase their monitoring potential.

In addition, women can also be seen as the gender enhancing the organizations' reputation in the stakeholders' view (Hoobler et al., 2018), based on the legitimacy theory (Suchman, 1995). Bilimoria (2000) argues that the mere women are represented in boards improves the organization's legitimacy by having an organizational culture indulgent to female's performance. Also, it offers a competitive edge to the organization in attracting and preserving competent females (Bilimoria, 2006). Next to gaining legitimacy within the external environment, Hoobler et al. (2018) argue that females will reduce an organization's dependence on outside capital. Based on the resource dependency theory (Pfeffer, 1972), Hillman, Shropshire, and Cannella Jr (2007) suggest that the organization's necessity for critical outside connections should influence a board's composition. As a result of women's various sets of perspectives, beliefs, and experiences, they have the opportunity to guide an organization to various stakeholders than men (Hillman et al., 2007), leading to a reduced dependency and better performance. Subsequently, women are seen as organizational capital that can lead to a strategic edge for the organization (Hoobler et al., 2018). In accordance to the resource-based view of firms (Barney, 1991), differences across organizations are a result of differences in capital and capacities of organizations (Hitt, Bierman, Shimizu, & Kochhar, 2001). Literature has suggested that human capital aspects (such as knowledge, expertise, and skills) and, specifically, the top managers' characteristics, influence the organization's performance (Finkelstein & Hambrick, 1996; Huselid, 1995; Pennings, Lee, & Witteloostuijn, 1998). Here, previous studies have found a relationship between board capital and performance, as board members' expertise and skills affect the monitoring and resource functions' effectiveness (Hillman & Dalziel, 2003), the two most important functions for organizations (Hillman & Dalziel, 2003). As female and male board members have various knowledge, experiences, skills, and perspectives, combining this could increase high quality decisions and thus the board's performance as a whole (Ali et al., 2014; Bear et al., 2010). By making better use of female and minority contributions, organizations can increase their creativity and acceptance of changes (Shrader, Blackburn, & Iles, 1997).

Taking all those internal resources together, the upper echelons theory (Hambrick & Mason, 1984) argues that the organization's TMT characteristics, and specifically, greater gender diversity, have an effect on organizational outcomes like strategic choices and performance (Hoobler et al., 2018). These outcomes are seen as a representation of the organization's influential actors' values and their cognitive bases (Hambrick & Mason, 1984). As women bring heterogeneity to decision-making, Krishnan and Park (2005) claim that women's participation in the TMT will offer the organization many benefits. Firstly, females are, more often than males, viewed as leaders in situations that demand a lot

of social contact (Kent & Moss, 1994). Secondly, females' struggles to their way up in an organization provide them with the requisite skills to deal with unpredictable function requests (Krishnan & Park, 2005), which may give women an advantage and therefore increase their contact with subordinates and superiors (Tharenou, 2001). Thirdly, females, compared to males, usually have more chance to have 'a sense of cognitive style' which enhances cohesion, that could encourage females to build trust among subordinates and superiors, share knowledge and influence, gather individuals together, and tackle issues (Hurst, Rush, & White, 1989). Fourthly, females tend to take a learning strategy in their interacting mechanisms more often than males, because they often pursue ties not only with others within the organization, but also seek external connections with other females so they can benefit from the perspectives of each other (Gersick, Dutton, & Bartunek, 2000; Ibarra, 1997), giving them the possibility to interact with more comprehensiveness, a mechanism utilizing a wide-ranging decision-making process and thus creating decisions of higher quality (C. C. Miller, Burke, & Glick, 1998). Lastly, women's various positions in private affairs provide them with cognitive advantages that refine multitasking skills, and improve leadership and communicational skills (Ruderman, Ohlott, Panzer, & King, 2002). These skills improve the decision-making's comprehensiveness and increase the performance of the organization (Krishnan & Park, 2005). As a result, organizations who employ a higher proportion of females are expected to have a higher performance because of their higher progressiveness and competitiveness, as their management is a better representation of the external environment (Shrader et al., 1997).

Second, gender supportive climates have been used to justify the relationship between the leadership of women and performance. Different theories build on the concept that gender supportive climates will lead to organizations being conducive to women occupying leadership roles, ensuring that boards make use of each member's unique contributions (Hoobler et al., 2018). Here, the social categorization perspective could explain that more diverse groups in terms of gender, lead to a better gender supportive climate. The basis for the perspective of social categorization is the assumption that differences and similarities among members of the work group lay the foundation for classifying others and self into smaller groups, differentiating between ingroup/similar and outgroup/dissimilar (Li & Hambrick, 2005; Van Knippenberg & Schippers, 2007). This process may be a result of the fact that people tend to favour, trust, and be likely to work together with similar subgroup members more (Brewer, 1979; Brewer & Brown, 1998; Tajfel & Turner, 1982). Work group (i.e. board) members are more comfortable and committed to a group when it is non-diverse, resulting in work groups (i.e. boards) functioning more smoothly (Van Knippenberg & Schippers, 2007). However, this more smoothly and faster decision-making process is a result of having homogenous groups with less perspectives and less comprehensive information (Midavaine, 2016). Several mechanisms explaining how gender supportive climates influence performance will be elaborated on.

To start with, Hoobler et al. (2018) claim that a critical mass of females will initiate a climate in which females can introduce their unique perspectives and skills to organizations, following the

critical mass theory (Kanter, 1977). When you bring in one of any demographic group that is easily recognizable (e.g. a female), they will try to figure out how they fit. With more females added to the board, trying to fit in is not an issue and results in females becoming more expressive and able to discuss their concerns (Konrad, Kramer, & Erkut, 2008). As a result, having more females in a board is argued to enable more open discussions (Bear et al., 2010). Connecting this to the information-processing character of boards, reaching this critical mass will accelerate the board's functioning of their roles. In addition, males appear to behave with socially sensitive attitudes (careful and respectful consideration of the actions and emotions of others) more often within gender diverse teams (M. Williams & Polman, 2015). The critical mass is set at three or more females (Jia & Zhang, 2013; Konrad et al., 2008; Torchia, Calabrò, & Huse, 2011), whereas gender is normalized and thus is no longer a barrier for acceptance and communication (Konrad et al., 2008).

Combining the social categorization and the information/decision-making perspectives, (Hoobler et al., 2018) argue that the participation of females shift the social dynamics into openness to fresh perspectives, based on the social identity theory (Tajfel, Turner, Austin, & Worchel, 1979). As individuals segment groups, people within a subgroup obtain a communal perception of themselves, complete the same objectives, and improve their self-reliance as they trust and like similar people more (Singh & Vinnicombe, 2004). However, exchanging a greater spectrum of views and perspectives should improve the corporate governance (Fondas & Sassalos, 2000). As females seem to hold the role of director quite serious, this may result in better corporate governance by more questions and open debates (Fondas & Sassalos, 2000). The participation of females is argued to contribute to both increased respectful attitudes and openness to different perspectives, and an increased collaborative and disruptive leadership style of boards (Singh & Vinnicombe, 2004). Opening up boardroom seats for both females and males may provide organizations an increased diversity identity that would help to grasp advantages from (Singh & Vinnicombe, 2004).

2.3 Board gender diversity and affect intensity

The theory on emotion utilizes various concepts including moods, emotions, and affect, which are often hard to discern (Delgado-García & De La Fuente-Sabaté, 2010). Ashforth and Humphrey (1995, p. 99) have defined emotion as a concept of "a subjective feeling state". These feeling states differ widely in length, continuity, valence and their intensity (Ashforth & Humphrey, 1995). This concept of emotion encompasses fundamental emotions like anger, love, and joy, social emotions such as jealousy, guilt, and shame, and associated constructions such as moods, sentiments, and affect (Ashforth & Humphrey, 1995). Emotions differ from mood and affect as emotions have a specific origin, last less long in length, are more concentrated, and have a higher intensity (Kelly & Barsade, 2001). In contrast, moods are defined as lower-intensity, transient states of feelings that typically have no specific origin, and are described as rather volatile, individual variances that last a short period of time (Kelly & Barsade, 2001).

Lastly, affect can be seen as a common concept including emotion as well as mood, which is referred to as consistent and individual variances in affect experiences for a longer period of time (Delgado-García & De La Fuente-Sabaté, 2010).

Wundt (1924) is considered among the first psychologists to argue that affective experiences (i.e. emotion and moods) involves valence and intensity. In 1980, Russell developed a dimensional approach, called the "circumplex model of affect". The model (figure 1) is built around two axes and proposes that affect is positioned on the two dimensions of valence (unpleasant – pleasant) and intensity (low activation – high activation), resulting in the fact that affect could be separated in areas (for example: low activated/pleasant versus high activated/pleasant). Hereby, the axes are argued to remain independent of each other (Thayer & Miller, 1988). Many researchers agree on the differentiation of affect along the dimensions of valence and intensity (Barrett, 1998; Barsade, 2002; Kuppens, Tuerlinckx, Russell, & Barrett, 2013; Munoz-de-Escalona & Canas, 2017; So et al., 2015).

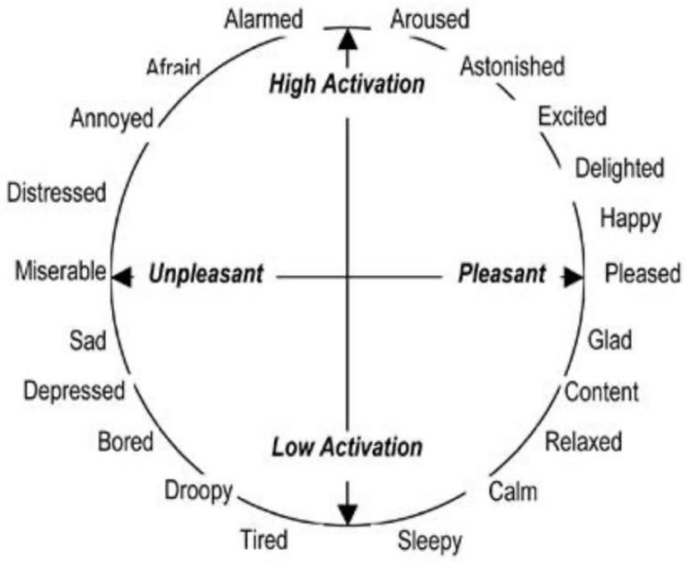


Figure 1: A circumplex model of affect (Russell, 1980)

Valence as well as the intensity are conceptualized as affective experiences (Russell, 1989), where valence is the perceptual feeling of (un)pleasantness and affect intensity is the perceptual feeling of low or high activation (Barrett, 1998). As affect intensity is the focus of this study, valence will not be further explained in detail. Affect intensity is the variation of individuals in the intensity of their response to a certain amount of emotion-stimulating causes (Larsen & Diener, 1987). Thereby, individuals can range from those who ignore their own affect intensity to those who emphasize it as a part of their emotional experience (Feldman, 1995). Individuals with high activated unpleasant affect usually appear to report high activated pleasant affect as well (Larsen & Diener, 1987).

To explain the level of affect intensity within a group (i.e. board), two mechanisms can be distinguished: gender differences in the level of experienced affect intensity, and the level of emotional contagion. First, in literature, females are generally classified as being the gender that is more emotional,

as they experience a higher level of affect intensity compared to males (Fujita et al., 1991; Grossman & Wood, 1993; Larsen & Diener, 1987). An explanation is that a typical female is characterized as affectively reactive, careful with feelings of herself and others, and emotionally unstable, in contrast to a typical male who is considered to be non-excitable, stoic, and emotionally stable (Grossman & Wood, 1993). This allows women to experience both more intense pleasant and unpleasant affect. Consequently, having more women in a board will lead to a higher level of affect intensity.

Second, having more women in a board will lead to more emotional contagion. As all board members take in their own personalities and affective states to board meetings (i.e. group dynamics), this and their fit in the group of board members are important factors to group functioning (Murphy & McIntyre, 2007). All individual-level affective experiences converge to shape the boards' affective composition (Kelly & Barsade, 2001). Kelly and Barsade (2001) propose that this mechanism takes place when individual affective experiences are exchanged and hence distributed to other members of the board. In regard to this interpersonal process, men tend to act with more respect to others' behaviour and feelings, when a few women are added to the group (M. Williams & Polman, 2015). Kelly and Barsade (2001) define group affect as a "result from the combination of the group's affective composition and the emotional context in which the group is interacting" (Murphy & McIntyre, 2007, p. 216). This sharing process is called group emotional contagion, of which the degree is influenced by two factors: valence and intensity (Barsade, 2002). Affect expressed with greater intensity will result in a higher level of contagion as more attention is paid to high intense affective states, resulting in more chances for contagion (Barsade, 2002). Also, messages with more intense affect are transferred with more power, as it expresses the message with greater clarity and accuracy in comparison to messages with less intense affect (Barsade, 2002). Following Barsade (2002), this leads to women, as the more emotional gender, having more influence on emotional contagion than men. Therefore, having more women in a board, this contagion leads to a higher group affective composition of the board. Taking the two mechanisms explaining the level of affect intensity within a group (i.e. board) together, this study proposes that the higher the level of board diversity measured in gender is, the higher the level of affect intensity is within the board. Therefore, the first hypothesis is as follows:

Hypothesis 1: The higher the level of board gender diversity, the higher the level of affect intensity within the board.

2.4 Affect intensity and board performance

Through engagement of the three board functions discussed earlier, boards are usually thought to affect specific organization outcomes such as business policy, management selection, and financial results (Boivie et al., 2016), as board members' expertise and skills affect the monitoring and resource functions' effectiveness (Hillman & Dalziel, 2003). To execute these functions, boards can be seen as information-processing groups (Boivie et al., 2016). Forgas' (1995) Affect Infusion Model (AIM) has been incorporating affect in this information processing function. Affect infusion is conceptualized as "the process whereby affectively loaded information exerts an influence on and becomes incorporated into the judgemental process, entering into the judge's deliberations and eventually colouring the judgemental outcome" (Forgas, 1995, p. 39). Hereby, affect intensity properties can influence decision-making outcomes (Forgas, 1995). The AIM distinguishes two mechanisms of affect infusion: affect priming and affect-as-information.

In compliance with the affect-priming mechanism, affect has an indirect effect on judgemental processess (Forgas, 1995). Since interpersonal judgements are constructive, the judge's notions, understandings, and memories are important (Forgas, 1995). Here, affect can indirectly influence judgements of information during meetings (Forgas, 1995). The process of judgements seems to have an influence on the information-processing role of boards, whereby boards are supposed to collect, transform and use all relevant information to perform their monitoring and resource provision functions (Forgas, 1995). As a result, the affect-priming principle indirectly influences the boards' judgements, decision-making processes, board functioning, and thus board performance.

In compliance with the affect-as-information mechanism, affect has a direct influence on judgements through rapid, heuristic processess as individuals make use of their affective states as a tool to determine their responses (Forgas, 1995). Thus, using affective states as information, emotions and moods are directly influencing judgements. Hereby, emotions are able to alter opinions and interfere with activities more compared to moods, resulting in consequences for the group's processes and its results (Kelly & Barsade, 2001). In comparison to emotions, individuals might not necessarily be concious of their mood and thus not know that their attitude is affected by it (Forgas, 1992). A laboratory experiment of Forgas (1990) demonstrates that moods can change judgement and decision-making directly.

In addition, Maitlis and Ozcelik (2004) argue that people take the expected satisfaction or disappointment for potential consequences into consideration in the decision-making process, as they are guided by their preferences and consequential expectations of their decisions. Therefore, Maitlis and Ozcelik (2004) state that these preferences and consequential expectations, which are the primary elements of decision-making, are inherently shaped by emotions. As a result, even very rational decisions are essentially influenced by one's affective state (Maitlis & Ozcelik, 2004). In addition, Ashkanasy, Härtel, and Daus (2002) argue that it is clear that emotionality plays a role in determining

behaviour in organizations. Therefore, affect is influencing organizational behaviour and decision-making outcomes, which will be reflected in board performance.

In line with the above mentioned mechanisms, Delgado-García and De La Fuente-Sabaté (2010) believe that the CEO's affect could be reflected in organization outcomes, based on studies demonstrating the effect of people's affective states on particularly strategic decisions (Daniels, 1999; Kisfalvi, 2000; Staw & Barsade, 1993). Thereby, Staw and Barsade (1993) did find that people experiencing a higher pleasant affective state ask for more data and make better use of this while making decisions, compared to people who are experiencing a low pleasant affective state (Delgado-García & De La Fuente-Sabaté, 2010). Here, a low pleasant affective state does not assume an unpleasant affective state, but a pleasant affective state with lower intensity (Delgado-García & De La Fuente-Sabaté, 2010). Therefore, Delgado-García and De La Fuente-Sabaté (2010) conclude that the relationship between managers' affect and their decisions, that can be reflected in organizational outcomes such as board performance, shows sufficient influence for further investigation. In addition, Seo and Barrett (2007) agree on the point that emotions are an important element in decision-making processes and indicate that an affective state can promote as well as impede human decision-making processes. Lastly, they state that people experiencing affect with more intensity, both pleasant and unpleasant, achieve a higher performance in decision-making (Seo & Barrett, 2007).

Concluding, to perform their monitoring and resource functions, boards have to deal with decision-making processes a lot. Therefore, boards can be seen as information-processing groups (Boivie et al., 2016). Diversity in those work groups may influence group processes and their performance (Van Knippenberg & Schippers, 2007). In those groups, all individuals' affective experiences converge to shape the boards' affective composition (Kelly & Barsade, 2001). Thereby, also emotional contagion, the sharing of affective experiences, is influencing the board's affective composition. In this process, emotions expressed with greater intensity should lead to more contagion (Barsade, 2002). This contagion with greater intensity will have influence on the group affective composition again, which will lead to a higher level of a group affective composition. Following Seo and Barrett (2007), this higher level of a group affective composition will result in a higher performance in decision-making, resulting in a higher board performance (Ali et al., 2014). Concludingly, this study proposes that a high level of affect intensity within the board positively affects the board's performance. Therefore, the second hypothesis is as follows:

Hypothesis 2: The higher the level of affect intensity within the board, the higher the board's performance.

2.5 Mediation of the board gender diversity – board performance relationship

The relationship between board gender diversity and performance have been extensively researched before. Often, the relationship has been researched as a direct relationship, although Forbes and Milliken (1999) state that it is a very complex and indirect relationship. However, findings on the effects remain inconclusive (Hoobler et al., 2018), resulting in a relationship of which the underlying mechanisms are still unclear: "*the black box*" (Zona & Zattoni, 2007). These intervening processes are considered as very important to investigate as these will expand and refine knowledge on what makes boards perform better (Forbes & Milliken, 1999), as there, after years to decades of research, still is a big literature gap regarding this "*black box*". Therefore, this study is adding the new perspective of the intervening mechanism of affect intensity into the board gender diversity – board performance relationship, bringing in a social-psychological aspect which has never been incorporated in studies on this relationship on large scale before. Combining the literature of the last three paragraphs leads to this study being the first in combining the two theorized hypotheses into an intervening mechanism, indicating that affect intensity has a mediating effect in the board gender diversity – board performance relationship. Figure 2 below provides a visual overview of the proposed theoretical framework, based on last the three paragraphs about the direct relationship of board gender diversity with board performance (link C), the relationship of board gender diversity with affect intensity (link A), and the relationship of affect intensity with board performance (link B).

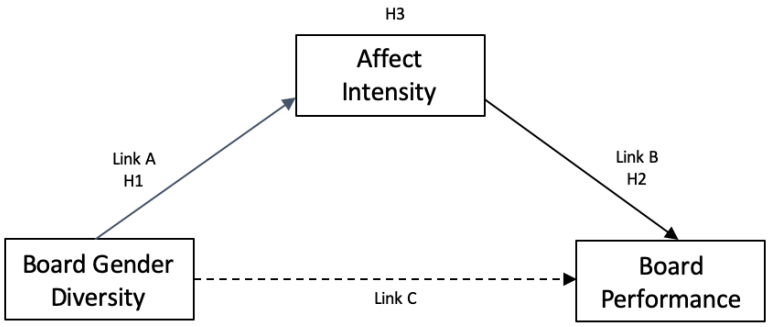


Figure 2: Proposed theoretical framework

This study tries to provide an explanation for the above mentioned unclear intervening mechanisms in the relationship between board diversity and performance: "*the black box*" (Zona & Zattoni, 2007). This is done by including affect intensity in the model. Board gender diversity is expected to have a positive effect on affect intensity, as females are generally classified as being the gender that is more emotional as they experience a higher level of affect intensity compared to males (Fujita et al., 1991; Grossman & Wood, 1993; Larsen & Diener, 1987), and woman are currently underrepresented in boards (Grant Thornton, 2019). In addition, having more women in a board leads to affective experiences being exchanged and hence distributed to other members to shape the boards'

affective composition, as more intense emotions are transferred with more power as it expresses the message with greater clarity and accuracy (Kelly & Barsade, 2001). Following, affect intensity is theorized to have a positive effect on board performance, as multiple studies have suggested a positive effect on decision-making (Delgado-García & De La Fuente-Sabaté, 2010; Seo & Barrett, 2007; Staw & Barsade, 1993), resulting in a higher board performance (Ali et al., 2014). Therefore, this study proposes that affect intensity has a (partially) mediating role in the relationship between board gender diversity and board performance. Therefore, the third, and last, hypothesis is as follows:

Hypothesis 3: Affect intensity (partially) mediates the relationship between board gender diversity and board performance.

3 – Methodology

3.1 Sample

The sample of this study contains data on boards of Dutch water management authorities in the time period of 2013-2019. These authorities have a general and a daily board. In total, there are 21 authorities with 641 general board members, 104 daily board members, and 21 "*dijkgraven*" (chairmen) who are members of the daily board (Unie van Waterschappen, n.d.). Therefore, commonly, one authority consists of 30 general and 5 daily board members who are also members of the general board. The general board members are partly nominated by public elections, whilst the daily board is nominated by the general board. For the general board, to some extent, seats are reserved for firm managers, environmental managers and farmers as the activities of the water management authorities concern multiple groups of stakeholders. The chairman is appointed by the government, is member of the daily board, but no member of the general board. The general board approximately gathers monthly, where the daily board is responsible for daily business. The roles of the general board can be classified under the functions of boards of directors described by Boivie et al. (2016), leading to this study's focus on the general boards of the Dutch water management authorities. In addition, the general board includes more directors while larger teams have more diversity potential (Bantel & Jackson, 1989), which makes the general board interesting to research with regard to the independent variable of board gender diversity.

The general board is mainly involved in developing the policy of the water authority, nominating the daily board and controlling if the daily board is performing well towards the policy. These functions can be classified under the monitoring and resource provision functions of boards of directors (Boivie et al., 2016), and encompass a variety of activities. The monitoring activity is the largest responsibility of the general board and includes the monitoring of the executed strategy by the daily board, which can be compared to a TMT (Boivie et al., 2016). The resource provision function of the general board encompasses activities such as creating regulations, describing the water management structure, imposing fines, managing employee salaries, determining budgets, and taking care of taxes and the annual report.

Given the fact that all water authorities, as a public sector organization, are obligated to be transparent, data regarding the board compositions (including gender) can be found via publicly available sources. The required data is collected via *Overheid in Nederland* (government in the Netherlands), and via the websites of each individual authority. Moreover, videos of meetings and data on board performance are gathered. The videos of meetings are publicly available through the individual authority's websites. However, not all authorities do have those videos available on their websites and others do not have enough usable videos (quantity or/and quality), which makes the sample smaller: 4 of the in total 21 Dutch water management authorities. In total, 102 observations (videos that encompass the time period of 2013 up to and including 2019, of in total approximately 176 hours of video footage)

are included in this sample. The sample size for regression analyses, the method used in this study, should be at least 50 and preferably 100 to ensure power (Hair, Black, Babin, & Anderson, 2014), which thus is met. In order to create the dataset used, the entire process of data collection has been a joint project together with three colleague-students.

3.2 Independent variable

Board gender diversity

The data on board gender diversity is retrieved from *Overheid in Nederland* and each individual water management authority's websites. In this panel data, every water management authority's board meeting is one unit of analysis and thus one observation. After gathering all data on board gender diversity, the diversity level for every water management authority's board per meeting is calculated.

The board gender diversity is easily observable and has only two categories: male and female. For categorical variables like gender, researchers in the field of diversity have used and recommended Blau's heterogeneity index (1977) to calculate diversity (Bantel & Jackson, 1989; Harrison & Klein, 2007; T. Miller & del Carmen Triana, 2009). Also, the four criteria for good diversity measurement are met: the index does not allow negative values, has a zero point to represent perfect heterogeneity, is not unbounded and a higher index indicates a higher level of diversity (Harrison & Sin, 2006; T. Miller & del Carmen Triana, 2009). Therefore, the Blau's index (1977) is utilized to capture an objective, relative measure of board gender diversity (Triana et al., 2014). Blau's index of heterogeneity (1977) is calculated as follows:

$$1 - (\sum_{i=1}^{n} P_i^2)$$

where *Pi* represents the percentage of board members in each category and *n* refers to the total number of categories. In this case, the board gender diversity index ranges from 0 to 0.5. In this study, the index takes a value of 0 if the board is homogenous, while it takes 0.5 when the percentage of each gender within the board is identical. As stated by Harrison and Klein (2007), Blau's index is a reflection of the likelihood of two random selected members of the group belonging to different classes.

3.3 Mediating variable

Affect intensity

Videos of board meetings of all incluced water management authorities in the sample are analyzed to investige the affect intensity levels displayed per meeting. An objective measurement of affect intensity is obtained through the collected videos, as multiple researchers claim group emotion (i.e. affect) has proven to be recognized reliably by both group members and outsiders and on-site as well as via rating of videos (Barsade, 2002; Bartel & Saavedra, 2000; Kelly & Barsade, 2001). To start, videos of board meetings of the different Dutch water management authorities within the sample has been collected. Most of these videos are easily downloadable via each individual authority's website. However, some of the authorities are working with Notubiz, a company that takes care of, among others, the recorded videos and livestreams of board meetings of some of the authorities. As a result, these videos are not that easy to download: a browser extention (Video DownloadHelper) had to be downloaded to be able to download the embedded videos.

To analyse the collected videos of board meetings, the Microsoft Azure Computer Vision Application Program Interface (API) is used. API is an algorithm developed by Microsoft that builds on Yu and Zhang's (2015) research, which calculates scores on eight different facial expressions for static frames (Choudhury, Wang, Carlson, & Khanna, 2019). Those eight facial expressions are based on research by Ekman and Friesen (1971) who were the first to introduce that people can express seven basic emotions that exisist throughout the world's cultures: happiness, anger, contempt, disgust, surprise fear, neutral, and sadness (Choudhury et al., 2019).

To conduct the analysis, static frames instead of videos are needed as input for the API algorithm. Therefore, the collected videos first have been converted to static frames by the use of VLC Media Player. Theoretically, one static frame should be captured per second of video footage using the "scene video filter" option. However, the VLC program converted the 633,311 collected seconds of video material into 599,149 static frames, most probably due to the computer's processor speed. Next, all static frames have been sorted per meeting. Frames without people on it, frames without speaking people on it, and frames with non-board members speaking on it have been deleted from the useable frames. In total, approximately 7% of the static frames was not usable and thus deleted. After sorting out the useable static frames, all frames have been checked if there were multiple people on it. If there were, all non-speaking people have been cut off the frames using a batch-cropper. Here, Birme, a freely available bulk image resizer on the internet is used. Therefore, the frames have been cropped in adherence to the minimal requirements for using the static frames in the analysis by the API algorithm (see Microsoft, n.d.). After this, all filenames have been converted to files with similar names (organization-date-person-frame number), for recognizing purposes.

After the static frames have been completely sorted, cropped, and renamed, these frames have been analyzed per meeting by the API algorithm using an account key (retrieved online after getting a

Microsoft-Azure account: 30 days free trial with a credit worth €170, sufficient for this study) in the terminal emulator, which provides text-based access to a computers' operating system to operate the API algorithm. In this terminal emulator, Python 3 (a programming language) is used to operate the API algorithm. Two Python 3 scripts have been created manually in order to get the output (recognized emotion scores per static frame) of all individual static frames generated by the API algorithm. The first script (appendix II-a) is created to get the measured emotion scores of each individual static frame (of one meeting) stored in JSON-files. This script takes the static frames that are stored in a specific named input folder saved on the desktop that is mentioned in the script, 'runs' these static frames with the API algorithm by using commands (file-name of the script itself) in the terminal emulator manually, and stores one JSON-file per static frame in another specific named output folder saved on the desktop which is mentioned in the script. The algorithm succeeded to assign scores to approximately 70% (range 17-93%) of the input, remaining static frames not meeting the quality-demands. The second script (appendix II-b) is created to transform all the JSON-files (appendix III-a) stored in the input folder by the first script runned into one CSV-file stored in the created output folder, which can be opened with Microsoft Excel.

The data returned (in CSV-file, see appendix III-b) from the API algorithm has assigned scores between 0-1 to each of the eight different facial expressions expressed/recognized. The sum of these eight scores for a given static frame always equals 1. Scores for a given affect expression can thus be perceived as a measure of the affect intensity expressed in relation to other possibly expressed affect expressions (Choudhury et al., 2019). Choudhury et al. (2019) argue that the data output of API algorithm can be treated with reasonable validity, based on a research comparing the API-coded scores to human-coded scores. Per meeting, the averages of all scores (all static frames) of one person are calculated, resulting in eight separate, average scores per individual per meeting. Then, those individual, average scores of all general board members are summed and divided by the number of members, which results in eight average scores of the general board per meeting. As one of these eight scores is the measure of 'neutral', the measurement of affect intensity is the sum of the other seven scores (anger, contempt, disgust, fear, happiness, sadness and surprise).

3.4 Dependent variable

Board performance

The dependent variable used in this study is board performance. Cohen and Bailey (1997) argue that team effectiveness (i.e. board performance) can be, among others, assessed in terms of quantity of outputs. Therefore, this study's dependent variable is calculated using the quantitative number of motions and amendments of a particular meeting, so the board's performance per meeting is measured. The number of motions and amendments is a sign of proactivity within the board, in contrast to

scheduled decision-making intentions, as general board members bring these in during meetings to discuss the board's policies. This proactivity can be linked to the board's monitoring role and thus board performance. Since each Dutch water management authority's performance is monitored and published online in annual reports (*jaarstukken*) as well as in decisions lists per meeting (appendix I), the needed data on board performance has been easily collected. All separate motions or amendments within a meeting are considered as 1 count, which means that board performance is a count variable.

3.5 Control variables

As indicated by an extensive review of the literature and logical reasoning on the contextual environment of the study, the following control variables are included in the analyses: board size, board meeting frequency, meeting duration, political diversity, age diversity, daily board affect intensity, year dummies and organization dummies.

Board size

Board size is acknowledged to have an impact on group dynamics (Li & Hambrick, 2005; Pelled, Eisenhardt, & Xin, 1999). Therefore, this study on board (i.e. group) gender diversity should include board size as a control variable. The board size is measured per observation by the number of board members per water management authority.

Board meeting frequency

More board meetings are approximated to mean that women would have more chances to show their unique leadership styles, and may thus have greater impact on the board's performance (Hoobler et al., 2018). Therefore, this study controls for the board meeting frequency which is measured in the number of meetings per year per water management authority.

Meeting duration

Following the reasoning to include board meeting frequency as a control variable in this study, meeting duration could logically have an effect on board performance as well, by having more time and thus more opportunities for woman to show their unique leadership styles and dynamics. Therefore, meeting duration is included in this study as a control variable and is measured in whole minutes.

Political diversity

In the specific context for this study, board members are partly elected by public elections. In addition, several seats are reserved for stakeholders. This allows a situation whereby board members can enter as a subgroup. In this context, it could be logically argued that the more political diversity exists within a board, the more differences in perspectives and opinions are present in the board. As a result, this could

lead to the formation of subgroups. Hence, this diversity as a control variable is needed to control for political subgroup diversity. The political diversity per observation is measured according Blau's index. The maximum number of political categories within the sample is thirteen, so the Blau index has a theoretical range from 0 to approximately 0.92.

Age diversity

Like political diversity, age diversity could influence the formation of subgroups and board performance. Therefore, age diversity is included as a control variable in the analyses of this study. The board members' ages within one observation are divided into five categories: ≤ 30, $30 \leq 40$, $40 \leq 50$, $50 \leq 60$, and > 60. The age diversity is measured according Blau's index and theoretically ranges from 0 to 0.8.

Daily board affect intensity

While the general board's affect intensity is the mediating variable of this study, the analysed videos of board meetings encompass footage of both the general and the daily board. Therefore, this study controls for the daily board's affect intensity as a control variable. The daily board's affect intensity is measured in the same way as the general board's affect intensity.

Year dummies

To control for time-specific effects, year dummies are included in the analyses, as suggested by Barkema and Shvyrkov (2007) in their study on the effect of diversity in the TMT.

Organization dummies

Organization dummies are included in the analyses to control for unobservable organization characteristics, as suggested by Palia and Lichtenberg (1999).

3.6 Analysis

The analyses of this study are conducted with the statistical program SPSS. Hypothesis 1 and 2 are tested using ordinary least squares (OLS) regressions, since the variables consist of panel data. For every observation within the dataset, a prediction of the dependent variable is made in the OLS estimation procedure to extract the regression variate (Hair et al., 2014), in order to estimate the relationship between the independent and dependent variable. The main analysis is conducted using all variables in its purest form: no variables have been transformed, as linear regressions are commonly robust to assumption violations (Schmidt & Finan, 2018). To start, the control variables are included in the model

to investigate whether the variation in the dependent variable is caused by the control variables. First, in model 1, affect intensity is regressed on the control and dummy variables. Second, in model 2, board gender diversity is included in the model. Third, in model 3, a regression of board performance on the control variables and dummy variables is executed. Fourth, in model 4, gender diversity is included in the model. Lastly, affect intensity is added to model 5.

Furthermore, hypothesis 3 is analysed by the use of three different methods. First, Baron and Kenny's (1986) stepwise approach is used. This method indicates the existence of a mediation effect if all three different relationships between the independent, mediating, and dependent variable are significant. Second, the Sobel test (Sobel, 1982), which indicates if the effect of the independent variable on the dependent variable significantly decreases after the mediating variable is added in de model, is conducted. Third, the hypothesis is tested using bootstrapping by using the plugin *Process* in SPSS, as suggested by Preacher and Hayes (2008a, 2008b). This is a random sampling method with replacement, that does not require the assumption that a sample is normally distributed. Sampling hundreds to thousand times, the approximation of the confidence interval of the indirect effect will be constructed.

3.7 Research ethics

When conducting the research, ethical conduct is important. Although all collected data can be found on publicly available websites, the used data is handled with caution as the available data on the board compositions of the Dutch water management authorities are not anonymous. Therefore, no results mentioned in this report will lead back to a specific person or water management authority in question. Also, the data are interpreted objectively, in order to represent the data analyses and results as honest as possible. In addition, knowledge of others and previous literature is always mentioned properly using references. Implications of the results may be of interest for the different water management authorities, so if desired, the report (and collected data) will be made available for them.

4 – Results

4.1 Descriptive statistics and correlations

The descriptive statistics of all variables included in the analyses are shown in table 1. To conserve space, the extended descriptive statistics can be found in appendix IV. This study encompasses 102 observations and therefore meets the requirement of the sample size to ensure power (Hair et al., 2014). There is no missing data, which means that a missing data analysis is not necessary. All included variables in the analysis are in its purest form: no variables have been transformed.

To start with the dependent variable, the mean of board performance is 1.66 with a rather small range of 0-13. Hence, a small level of variation in the dependent variable is observed. In addition, the standard deviation of board performance is 2.232. The mean of gender diversity is moderately high with 0.342, whilst the theoretical maximum is 0.5. The standard deviation of gender diversity is very small (0.047), which means not a lot of variance is measured. The affect intensity variable has a range that stretches from 0.019 to 0.522 approximately, while the theoretical maximum value is 1. Moreover, the mean is 0.153, which is fairly low on first sight. However, this average is comparable to other studies involving affect intensity, may it be in other settings. This seemingly low number could be explained by the fact that people simply do not show very intense affect all the time.

Table 1. Descriptive statistics of the included variables

	Variable	*N*	*Mean*	*S.D.*	*Min*	*Max*
1	Board performance	102	1.660	2.232	0	13
2	Affect intensity	102	.153	.060	.019	.522
3	Gender diversity	102	.342	.047	.257	.430
4	Board size	102	31.620	1.203	27	33
5	Meeting frequency	102	10.490	3.168	4	14
6	Meeting duration	102	103.800	74.724	5	369
7	Political diversity	102	.888	.006	.877	.901
8	Age diversity	102	.673	.052	.584	.776
9	Daily board affect intensity	102	.136	.066	.023	.417
10	Dummy FR	102	.226	.420	0	1
11	Dummy ZZ	102	.039	.195	0	1
12	Dummy HDSR	102	.088	.285	0	1
13	Dummy AGV	102	.647	.480	0	1
14	Dummy 2013	102	.039	.195	0	1
15	Dummy 2014	102	.078	.270	0	1
16	Dummy 2015	102	.078	.270	0	1
17	Dummy 2016	102	.098	.299	0	1
18	Dummy 2017	102	.196	.399	0	1
19	Dummy 2018	102	.206	.406	0	1
20	Dummy 2019	102	.304	.462	0	1

Table 2. Correlations of the included variables (excluding dummy variables)

Correlations	*Board perf.*	*Affect intensity*	*Gender div.*	*Board size*	*Meeting freq.*	*Meeting dur.*	*Political div.*	*Age div.*	*Daily board aff. int.*
Board performance	1								
Affect intensity	0.020	1							
Gender diversity	0.043	-0.164*	1						
Board size	-0.119	-0.111	-0.492***	1					
Meeting frequency	-0.259***	-0.313***	0.165*	0.237**	1				
Meeting duration	0.675***	0.061	0.053	-0.379***	-0.338***	1			
Political diversity	-0.160	0.164	-0.246**	0.376***	0.126	-0.320***	1		
Age diversity	0.244**	-0.028	0.363***	-0.038	-0.459***	0.182*	-0.455***	1	
Daily board aff. int.	0.075	0.272***	0.025	-0.333***	-0.247**	0.085	0.025	-0.062	1

***p <0.01, **p <0.05, *p <0.1 two-tailed test

N = 102

Table 2 reveals some significant correlations between the included variables, excluding year and organization dummies in the table to conserve space. Affect intensity is negatively correlated with board gender diversity (-0.164, $p < 0.1$). This suggests that more diverse boards in terms of gender will show less intense affect than less gender diverse boards, which is in contrast to the theory. In addition, board performance is not found to be significantly correlated with the independent variable as well as the mediating variable. The paragraph following will elaborate on the support of the proposed hypotheses.

4.2 Hypotheses

Table 3. OLS regression results: mediating variable

Variables	*Arousal*			
	Model 1		Model 2	
	Coef	*p*	Coef	*p*
Gender diversity			-0.436	.270
			(.393)	
Board size	0.007	.755	-0.020	.537
	(.022)		(.033)	
Meeting frequency	-0.007	.268	-0.006	.379
	(.006)		(.006)	
Meeting duration	-0.000	.513	-0.000	.481
	(.000)		(.000)	
Political diversity	2.434	.461	3.118	.354
	(3.290)		(3.342)	
Age diversity	-0.419	.228	-0.170	.680
	(.345)		(.411)	
Daily board aff. int.	0.130	.174	0.133	.162
	(.094)		(.094)	
Dummy FR	0.052	.203	0.006	.917
	(.040)		(.057)	
Dummy ZZ	0.028	.838	-0.069	.670
	(.136)		(.162)	
Dummy HDSR	0.037	.391	0.001	.979
	(.043)		(.053)	
Dummy 2013	0.014	.858	-0.023	.783
	(.076)		(.082)	
Dummy 2014	-0.40	.519	-0.084	.256
	(.062)		(.074)	
Dummy 2015	-0.011	.816	-0.023	.642
	(.049)		(.050)	
Dummy 2016	-0.044	.346	-0.057	.232
	(.046)		(.048)	
Dummy 2017	-0.040	.183	-0.053	.101
	(.030)		(.032)	
Dummy 2018	-0.028	.367	-0.041	.217
	(.031)		(.033)	
R^2	.268		.278	
N	102		102	

Standard errors are in parentheses

***p <0.01, **p <0.05, *p <0.1 two-tailed test

Hypothesis 1 predicts that board gender diversity is positively related to affect intensity. In table 3, the results of the OLS regression of affect intensity on board gender diversity including all control variables and dummies are shown. Model 1 excludes board gender diversity to test the effect of the control variables on affect intensity. None of these variables shows a significant effect on affect intensity. Moreover, the R^2 in model 2 increases from 0.268 to 0.278, which suggests that the explanatory variable is adding only very little value (1.0 percent) to the explanation of the variation in the dependent variable. This means that the explanation of the variation in the dependent variable is mostly explained by the control variables (26.8 percent). Model 2 includes the explanatory variable and shows that hypothesis 1 is rejected, since board gender diversity has no significant effect on affect intensity (-0.417, $p > 0.1$).

Table 4. OLS regression results: dependent variable

Variables	*Board performance*					
	Model 3		Model 4		Model 5	
	Coef	*p*	Coef	*p*	Coef	*p*
Affect intensity					-0.656	.834
					(3.121)	
Gender diversity			15.664	.167	15.378	.180
			(11.239)		(11.384)	
Board size	0.210	.741	1.192	.210	1.178	.219
	(.632)		(.944)		(.952)	
Meeting frequency	0.346*	.053	0.299*	.098	0.295	.106
	(.176)		(.179)		(.181)	
Meeting duration	0.023***	.000	0.023***	.000	0.023***	.000
	(.003)		(.003)		(.003)	
Political diversity	-68.548	.470	-93.118	.333	-91.072	.349
	(94.498)		(95.623)		(96.656)	
Age diversity	11.279	.258	2.337	.843	2.226	.851
	(9.915)		(11.765)		(11.843)	
Daily board aff. int.	1.405	.606	1.276	.638	1.363	.621
	(2.712)		(2.699)		(2.746)	
Dummy FR	0.509	.661	2.148	.195	2.152	.197
	(1.155)		(1.644)		(1.654)	
Dummy ZZ	-0.801	.838	2.692	.562	2.647	.572
	(3.914)		(4.630)		(4.661)	
Dummy HDSR	1.712	.167	2.985*	.054	2.986*	.055
	(1.229)		(1.526)		(1.535)	
Dummy 2013	5.334**	.016	6.639***	.006	6.624***	.006
	(2.171)		(2.353)		(2.368)	
Dummy 2014	2.779	.123	4.355**	.042	4.300**	.047
	(1.785)		(2.105)		(2.133)	
Dummy 2015	0.736	.600	1.163	.417	1.147	.426
	(1.398)		(1.424)		(1.434)	
Dummy 2016	2.535*	.059	3.027**	.029	2.990**	.034
	(1.325)		(1.365)		(1.384)	
Dummy 2017	1.269	.142	1.734*	.061	1.699*	.073
	(.857)		(.915)		(.935)	
Dummy 2018	1.467*	.098	1.929**	.042	1.903**	.048
	(.877)		(.933)		(.947)	
R^2	.563		.573		.573	
N	102		102		102	

Standard errors are in parentheses

***p <0.01, **p <0.05, *p <0.1 two-tailed test

Hypothesis 2 predicts that affect intensity is positively related to board performance. In table 4, the regression models for testing hypothesis 2 are shown. First, model 1 shows the effect of all control and dummy variables on board performance. Second, the independent variable, board gender diversity, is included in model 2. Finally, in model 3, the mediating variable of affect intensity is included.

Looking at the R^2 of the models, estimated is that the control variables explain 56.3 percent of the variation in the dependent variable, and the independent variable explains an additional 1.0 percent (table 4). In the third model, when the mediating variable is included, no increase in explanatory power has been measured.

In model 3, only one relationship is detected to be significant (excluding dummies). However, this is a control variable. Meeting duration is positively related to board performance (0.023, $p < 0.01$), which means that for every minute increase in meeting duration, the board's performance (measured in the quantitative number of motions and amendments) will increase with 0.023. This means that every hour increase in meeting duration will result in an increase of board performance by 1.38.

However, the independent and mediating variables are not found to have an effect on board performance. Board gender diversity does not show a significant relationship with board performance (15.378, $p > 0.1$), which estimates that there is no direct relationship found between the independent variable and the dependent variable (see figure 2, link C). Furthermore, affect intensity does not show a significant relationship with board performance as well (-0.656, $p > 0.1$). Therefore, hypothesis 2 is rejected.

Table 5. The mediating role of affect intensity

	Baron and Kenny's stepwise approach								
	Effect of X on M			Effect of X on Y			Effect of M on Y		
	Coef	T	*p*	Coef	T	*p*	Coef	T	*p*	
Gender diversity	-0.436	-1.110	.270	15.378	1.351	.180	-0.656	-.210	.834	Mediation not supported

	Sobel test	
	p	
Gender diversity	0.83638841	Mediation not supported

	Bootstrapped estimate		
	Confidence interval		
Gender diversity	-3.9490	3.4538	Mediation not supported

As stated in hypothesis 3, affect intensity is predicted to mediate the relationship between board gender diversity and board performance. In particular, expected is that the higher the gender diversity within the board is, the higher the level of affect intensity is and that this will in turn affect board performance positively.

Mediation effects are generally observed using causal step approaches, of which the most common is Baron and Kenny's (1986) stepwise approach (Di Stefano, King, & Verona, 2014). In compliance with this approach, a mediation effect is detected if: "(1) the independent variable significantly predicts the mediation variable, (2) the independent variable significantly predicts the dependent variable, and (3) the mediating variable significantly predicts the dependent variable while controlling for the effect of the independent variable" (Di Stefano et al., 2014, p. 1661).

Results of the stepwise test do not confirm that affect intensity significantly mediates the relationship between board gender diversity and board performance. This is shown in table 5 by: (1) the non-significant coefficient of board gender diversity (coefficient = -0.436, t = -1.110, $p > 0.1$) when explaining affect intensity, (2) the non-significant coefficient of board gender diversity (coefficient = 15.378, t = 1.351, $p > 0.1$) when explaining board performance, and (3) the non-significant effect of affect intensity on board performance when controlling for board gender diversity (coefficient = -0.656, t = -.210, $p > 0.1$).

To ensure robustness of the above findings to substitutional mediation tests, additional parametric (Sobel-test) and nonparametric (bootstrap) tests have been conducted. A Sobel-test (Sobel, 1982) is conducted and its results are in line with what is found using the approach of Baron and Kenny: affect intensity is not found to be a significant mediating variable between board gender diversity and board performance (table 5). For the nonparametric test, the bootstrap approach of Preacher and Hayes (2004) is used: the calculation of the indirect effect via the mediating variable by the use of 5000 bootstrap samples with a confidence interval of 95 percent (Preacher, Rucker, & Hayes, 2007). First, a regression of affect intensity on the independent variable and control variables is conducted by using bootstrapping. After that, all independent and control variables have been executed in the regression with bootstrapping for board performance. As with the previous two approaches, no support that affect intensity is a significant mediating variable between board gender diversity and board performance has been found, as zero (the null) lies between the lower and upper bound within the confidence interval (table 5).

4.3 Robustness checks

A series of tests have been conducted aiming to assess the robustness of the findings. All robustness checks are based on the main analysis, with changing only one of the variables at a time. First, a number of observations is excluded from the main analysis. Second, multiple measurements of the dependent variable, mediating variable, and the independent variable are regressed. Third, a negative binomial regression is performed. Table 6 contains all results of the robustness checks and is presented in the next two pages. In addition, also a post-hoc test to find out whether the theorized differences in affect intensity between women and men are indeed measured, is conducted.

Table 6. Robustness checks (1/2)

	Model 1a		Model 1b		Model 2a		Model 2b		Model 2c		Model 3a		Model 3b	
	H1 Trimmed observations		H2 Trimmed observations		H2 DV # of decisions		H2 DV # of decisions 2		H2 DV Winsorized		H1 Affect intensity 2		H2 Affect intensity 2	
Variables	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***
Affect intensity			-2.198	.506	0.796	.882	4.638	.721	-0.887	.756			2.029	.638
			(3.286)		(5.349)		(12.966)		(2.848)				(4.301)	
Gender diversity	-0.312	.468	21.640*	.071	10.299	.599	-36.992	.436	13.215	.207	-0.238	.406	16.146	.158
	(.427)		(11.792)		(19.514)		(47.301)		(10.391)		(.285)		(11.336)	
Board size	-0.029	.416	2.248**	.026	0.161	.922	-0.318	.936	1.156	.187	0.018	.465	1.156	.228
	(.036)		(.986)		(1.631)		(3.955)		(.869)		(.024)		(.952)	
Meeting frequency	-0.001	.885	0.300	.133	-0.318	.306	-0.057	.939	0.276*	.098	-0.012**	.012	0.322	.087
	(.007)		(.197)		(.309)		(.750)		(.165)		(.005)		(.186)	
Meeting duration	-0.000	.588	0.027***	.000	0.025***	.000	0.064***	.000	0.021***	.000	-0.000	.712	0.023***	.000
	(.000)		(.003)		(.004)		(.011)		(.002)		(.000)		(.003)	
Political diversity	5.205	.160	-89.919	.381	-42.791	.797	-267.244	.508	-45.177	.610	-2.387	.327	-88.274	.363
	(3.661)		(102.090)		(165.688)		(401.612)		(88.222)		(2.423)		(96.611)	
Age diversity	-0.334	.446	2.645	.827	-16.852	.409	30.297	.540	5.754	.596	-0.438	.146	3.225	.788
	(.436)		(12.041)		(20.302)		(49.209)		(10.810)		(.298)		(11.968)	
Daily board aff. int.	0.247**	.028	2.383	.449	-0.993	.833	-2.315	.840	1.106	.660	0.077	.263	1.120	.683
	(.110)		(3.126)		(4.706)		(11.408)		(2.506)		(.068)		(2.731)	
Dummy FR	0.025	.721	3.299*	.086	0.437	.878	2.934	.671	2.211	.147	0.027	.513	2.093	.210
	(.069)		(1.894)		(2.835)		(6.871)		(1.509)		(.042)		(1.656)	
Dummy ZZ	-0.130	.461	7.415	.129	-3.776	.638	-3.290	.866	3.793	.375	0.020	.867	2.652	.570
	(.175)		(4.831)		(7.990)		(19.366)		(4.254)		(.117)		(4.652)	
Dummy HDSR	0.031	.610	3.670**	.033	-0.908	.731	-7.687	.231	2.534*	.074	-0.003	.941	2.991**	.054
	(.061)		(1.690)		(2.631)		(6.378)		(1.401)		(.039)		(1.533)	
Dummy 2013	-0.053	.560	8.128***	.002	0.895	.826	5.468	.580	6.164***	.005	-0.025	.680	6.689***	.006
	(.090)		(2.479)		(4.058)		(9.837)		(2.161)		(.060)		(2.366)	
Dummy 2014	-0.101	.221	6.143***	.008	0.155	.966	6.903	.438	3.776*	.056	-0.030	.580	4.415**	.040
	(.082)		(2.267)		(3.657)		(8.864)		(1.947)		(.053)		(2.119)	
Dummy 2015	-0.008	.879	1.480	.317	-2.199	.374	-2.770	.643	1.400	.288	-0.092**	.012	1.350	.366
	(.053)		(1.468)		(2.458)		(5.957)		(1.309)		(.036)		(1.484)	
Dummy 2016	-0.043	.431	3.214**	.037	0.740	.756	4.656	.420	2.912**	.024	-0.106***	.003	3.241**	.027
	(.055)		(1.508)		(2.372)		(5.751)		(1.263)		(.035)		(1.444)	
Dummy 2017	-0.075**	.037	2.438**	.017	0.168	.917	2.387	.541	1.692*	.051	-0.075***	.002	1.886**	.056
	(.035)		(.997)		(1.602)		(3.884)		(.853)		(.023)		(.974)	
Dummy 2018	-0.035	.316	1.612*	.095	0.476	.770	0.501	.899	1.869**	.033	-0.080***	.001	2.092**	.039
	(.034)		(.952)		(1.624)		(3.936)		(.865)		(.024)		(.999)	
R^2	.335		.645		.455		.560		.582		.404		.574	
N	87		87		102		102		102		102		102	

Standard errors are in parentheses

***p <0.01, **p <0.05, *p <0.1 two-tailed test

Table 6. Robustness checks (2/2)

	Model 3c		Model 3d		Model 4a		Model 4b		Model 5	
	H1 Affect int. winsorized		H2 Affect int. winsorized		H1 Proportion of women		H2 Proportion of women		H2 Neg. Binomial	
Variables	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***	**Coef**	***p***
Affect intensity			0.092	.980			-0.576	.854	-2.752	.433
			(3.719)				(3.115)		(3.512)	
Gender diversity	-0.408	.219	15.702	.172	-0.511	.249	19.137	.137	8.643	.395
	(.330)		(11.407)		(.440)		(12.738)		(10.163)	
Board size	-0.019	.497	1.194	.214	-0.022	.514	1.279	.181	1.051	.204
	(.028)		(.952)		(.033)		(.947)		(.828)	
Meeting frequency	-0.005	.329	0.299	.101	-0.005	.437	0.271	.141	0.040	.796
	(.005)		(.181)		(.006)		(.183)		(.154)	
Meeting duration	-0.000	.855	0.023***	.000	-0.000	.470	0.023***	.000	0.013***	.000
	(.000)		(.003)		(.000)		(.003)		(.002)	
Political diversity	2.798	.321	-93.375	.337	3.323	.327	-100.461	.305	16.552	.836
	(2.805)		(96.751)		(3.371)		(97.365)		(79.884)	
Age diversity	-0.201	.561	2.356	.843	-0.091	.838	-1.239	.923	3.816	.718
	(.345)		(11.858)		(.445)		(12.794)		(10.579)	
Daily board aff. int.	0.022	.785	1.274	.640	0.135	.157	1.292	.638	1.753	.463
	(.079)		(2.716)		(.094)		(2.741)		(2.386)	
Dummy FR	0.011	.825	2.147	.198	0.001	.989	2.441	.156	1.617	.241
	(.048)		(1.655)		(.059)		(1.705)		(1.380)	
Dummy ZZ	-0.064	.641	2.698	.564	-0.062	.694	2.574	.568	4.320	.280
	(.136)		(4.663)		(.156)		(4.495)		(3.997)	
Dummy HDSR	0.009	.843	2.984*	.055	-0.003	.963	3.209**	.044	0.912	.488
	(.045)		(1.536)		(.055)		(1.567)		(1.316)	
Dummy 2013	-0.062	.372	6.644***	.006	-0.024	.771	6.749***	.005	2.239	.254
	(.069)		(2.378)		(.082)		(2.358)		(1.962)	
Dummy 2014	-0.068	.272	4.361**	.044	-0.088	.240	4.553**	.038	1.314	.472
	(.062)		(2.133)		(.075)		(2.158)		(1.829)	
Dummy 2015	-0.020	.635	1.164	.419	-0.024	.631	1.204	.403	0.715	.558
	(.042)		(1.434)		(.050)		(1.432)		(1.219)	
Dummy 2016	-0.052	.200	3.032**	.031	-0.058	.227	3.045**	.030	1.093	.341
	(.040)		(1.386)		(.048)		(1.381)		(1.147)	
Dummy 2017	-0.048*	.077	1.738*	.067	-0.054*	.097	1.754*	.064	0.818	.320
	(.027)		(.937)		(.032)		(.933)		(.823)	
Dummy 2018	-0.037	.175	1.933**	.045	-0.040	.216	1.924**	.043	0.725	.402
	(.027)		(.949)		(.032)		(.938)		(.865)	
R^2	.246		.573		.279		.575			
N	102		102		102		102		102	

Standard errors are in parentheses

***p <0.01, **p <0.05, *p <0.1 two-tailed test

Trimmed observations

To conduct the analysis, the API algorithm has been used for recognizing expressed facial expressions (i.e. affect) of the static frames collected. Here, API has not been able to analyse all of the static frames, resulting in a not fully complete score-file. In the most cases, API scored 70 percent or more of the static frames. However, of some meetings only 50 percent or less of the static frames has been scored. Therefore, the affect score does not fully cover and represent the affect (including its intensity) present. It may even be possible that some of the board members' static frames have not been scored by API at all. Therefore, as a robustness check, only meetings where 50 percent or more of the static frames have been scored by API are analysed. Of 102 observations in total, 15 did not meet this 50 percent API score criterium: 87 observations are analysed in this robustness check (model 1a and 1b). Hypothesis 1 (model 1a) shows no significant effect of board gender diversity on affect intensity. However, as can be seen in model 1b, hypothesis 2 shows a positive significant effect of board gender diversity on board performance (21.640, $p < 0.1$). This means that every standard deviation increase (0.047) of board gender diversity results in an increase of approximately 1.017 in board performance. Considering the mean (0.342) and range (0.257 – 0.430) of board gender diversity, and the range of board performance (0 – 13), this magnitude is moderately high. However, the mediating effect of hypothesis 3 will remain non-significant due to the findings with regard to hypothesis 1.

Measurement of the dependent variable, board performance

In order to test the robustness of the dependent variable, multiple measures of board performance have been analysed (table 7). As can be seen in model 2a and 2b, these different measures of board performance do not show significant effects with regard to hypothesis 2. Therefore, hypothesis 3 will not be significant as well.

Board performance (main)	**Number of decisions**	**Number of decisions 2**
Calculated using the decisions list of a particular meeting. Containing: the quantitative number of motions and amendments. All separate motions or amendments within a meeting are seen as 1 count.	Calculated using the quantitative number of decisions, using the decisions list of a particular meeting. Containing: budgetary decisions, investing decisions, policy notes, regulations, agreements concluded, and decisions on water area plans, water level decisions and project plans for water management. All decisions regarding one subject are seen as 1 count.	Calculated like '*number of decisions'*, with a small adjustment. Some decisions regarding one subject are divided in several sub decisions. Each sub decision is seen as 1 count.

Table 7: Three different measures of board performance (count variable)

In addition, the main measurement of board performance has been transformed by winsorizing as a result of the output derived in descriptive statistics, histograms, box and whisker plots, and scatter plots (appendix V-a). This means that one observation of board performance was an outlier at first, but this score is replaced with the values of the nearest unaffected value which is no outlier (Tukey, 1962). One observation of the dependent variable was relatively high (13) and is replaced with the next highest value (9). Winsorizing is preferred over trimming, as winsorizing does not lower the sample size. However, this did not make any difference in comparison to the main measurement of board performance: no significant effect is found with regard to hypothesis 2, as is shown in model 2c. Therefore, hypothesis 3 will also not be significant.

Measurement of the mediating variable, affect intensity

In order to check the robustness of the mediating variable, a second measure of affect intensity has been analysed (table 8). Here, the measure 'surprise' is excluded from the main measurement of affect intensity, as surprise does not imply whether it is a positive or negative affective state and therefore it is unclear whether it fits the circumplex model of affect (Russell, 1980). Model 3a and 3b do not show differences from the main analysis: no significant effects with regard to hypotheses 1 and 2 have been found and therefore hypothesis 3 will also show no significant effects.

Affect intensity (main)	**Affect intensity 2**
Anger	Anger
Contempt	Contempt
Disgust	Disgust
Fear	Fear
Happiness	Happiness
Sadness	Sadness
Surprise	

Table 8: Two different measures of affect intensity

Like with board performance, also one observation of affect intensity (main measurement) was very high compared to the other values within the sample (0.522). This value has been winsorized as well, by replacing this relatively high value by the next highest value (0.286) (appendix V-b). Model 3c and 3d show no significant effects with regard to hypothesis 1 and 2 as well, and therefore hypothesis 3 will also show no significant effects.

Measurement of the independent variable, board gender diversity

In order to check the robustness of the independent variable, a second measurement of board gender diversity has been analysed. In the main analysis, board gender diversity is measured using Blau's index. As a robustness check, the proportion of women in a board is used. No significant effects with regard to hypothesis 1 and 2 are shown in model 4a and 4b. Therefore, hypothesis 3 will also show no significant effects.

Negative binomial regression

A negative binomial regression has been conducted as an alternative analysis as the dependent variable, board performance, is a count variable. This is a variable that represents the number of times an event occurred (Blevins, Tsang, & Spain, 2015). In this study, this is the quantitative number of motions and amendments within a particular board meeting. Dealing with this count variable, a more specialised regression can be performed based on the Poisson model (Blevins et al., 2015). In addition, as the dependent variable is overdispersed (mean 1.660 < 4.980 variance), a special iteration of the Poisson model, the negative binomial regression, is performed with regard to hypothesis 2. Hypothesis 1 does not have a count variable as dependent variable, so a negative binomial regression cannot be used as an alternative analysis. However, no significant effect with regard to hypothesis 2 has been found, as shown in model 5.

4.4 Post-hoc analysis: affect intensity differences women and men

Table 9. Descriptive statistics and t-tests post-hoc analysis: affect intensity differences women and men

Variable	*N*	*Mean*	*S.D.*	*Independent samples t-test*	
1 Affect intensity women	89	.206	.079	t-value	-6.345
2 Affect intensity men	102	.140	.065	p-value	.000

To peruse whether the non-significant findings can be explained by a failure to find support for the assumption that men and women differ in their affect intensity, an independent samples t-test is conducted. Table 9 shows the descriptive statistics and t-test results of the differences in affect intensity levels of men and women within the general boards of the sample. As women are not represented in all boards, the number of observations for affect intensity of women is lower than for men. The independent samples t-test for the general board is found significant ($p < 0.01$), implying there is indeed a significant difference between women and men in affect intensity.

5 – Discussion

5.1 Discussion and contributions

In this section, the results of the analyses are discussed, leading to contributions to the scientific literature in terms of boundary conditions and suggestions for further research, which will be elaborated on per hypothesis for overview purposes after the central question of the study is repeated. As this study aims to investigate the mediating role of affect intensity in the board gender diversity – board performance relationship, the central question of this study is as follows:

'*What is the influence of board gender diversity on board performance and does affect intensity (partially) mediate this relationship*?'

The first hypothesis, with regard to the positive effect of board gender diversity on affect intensity, is found to be not significant and is thus rejected. Apparently, the level of board gender diversity does not have a significant, positive impact on the level of affect intensity in the board of directors, in contrast to what was expected according to the theory. Although women are indeed significantly showing higher affect intensities, as theorized, this study implies that board gender diversity does not have a significant impact on the affect intensity measured on board-level. An explanation might be that the second mechanism explaining the level of affect intensity (emotional contagion) is not applicable to this study's context. For example, the mechanism might not work for groups in a professional working environment and, as a result, is not applicable for boards of directors, implying a boundary of the mechanism. As this study only investigated the effect of the board gender diversity level, the mechanism of emotional contagion is not specifically tested. Therefore, as women are indeed found to express more affect intensity, further research could investigate the underlying dimensions of the influence of the individual affective states of men and women on the affective intensity on board-level to see if this mechanism is applicable to boards of directors and explore the boundaries of the mechanism. In addition, although women are measurably showing more intense affect, it may also be possible that some board members' experienced affect intensity differs from the affect intensity recognized by the API algorithm. Although Choudhury et al. (2019) argue that the data output of the API algorithm can be treated with reasonable validity, there could be differences in experienced and expressed affect intensity. For example, individuals can range from those who ignore their own affect intensity to those who emphasize it as a part of their emotional experience (Feldman, 1995). In addition, Jarvis (2017) argues that people face social pressures to act with feigning behaviour frequently, and decouple their expressed emotions in valence and/or intensity from their own experiences as a mechanism to meet social expectations. As this influences the affect intensity level on board-level, this could possibly influence decision-making processes and thus board performance. Therefore, feigning behaviour could be a third mechanism explaining the level of affect intensity within professional

working environments like boards of directors, whether there are gender differences in this feigning behaviour or not, which could be examined in further research. Concluding, the current literature of (gender differences in) affect intensity is found to be not applicable to boards of directors, leading to boundaries of the existing literature and a suggestion for further research in order to specify the underlying mechanisms of affect intensity within boards of directors in the literature.

The second hypothesis, on the positive effect of affect intensity on board performance, is found to be not significant as well, and is thus rejected too. Although Forgas' (1995) Affect Infusion Model (AIM) has been incorporating affect in the information processing function that boards have, the two mechanisms of this model are found to be not applicable to this professional working environment or are compensated by another mechanism. An explanation for this might be that board members make decisions in order to get the best possible outcomes for their organization instead of letting affect intensity influence their decision-making process, as Maitlis and Ozcelik (2004) state that decision-making is as result of people's preferences and consequential expectations of their decisions. Here, individuals take the expected satisfaction or disappointment for potential consequences they will face with potential outcomes into consideration (Maitlis & Ozcelik, 2004). This might imply that affect intensity is less relevant in the decision-making processes within professional working environments like boards than expected. Research of Adams and Funk (2012) have shown that male and female directors fundamentally differ in their beliefs, but in other ways then the general population does. An explanation could be that board members differ from the general population and think and act on behalf of the organization instead of their own. This sets the stage to sharpen the theory on the effect of affect intensity on performance within boards of directors, as the existing literature is found to be not applicable to this study's context and thus is found to have boundaries. In addition, the average board of this sample contains 30 members, while the average board size is approximately 10, as found by research of Coles, Daniel, and Naveen (2008). This could provide another explanation of the non-significant effect of affect intensity on board performance, as previous research on emotional contagion is mainly conducted at small groups (2-4 participants) (Barsade, 2002). As a result, affect could be less shared within bigger groups like boards, leading to an interesting further research subject to broaden literature on (board) affect. Hereby, differences in the effect of affect intensity within small and larger groups could be investigated to sharpen the literature and determine boundary conditions.

To explain the not statistically proven mediating effect of affect intensity within the relationship of board gender diversity and board performance, the third hypothesis can be split in two: the direct and the indirect effect of board gender diversity on board performance. In previous board gender diversity literature on the effect on performance, outcomes are inconclusive. Therefore, finding no significant relationship in this study is not a completely unexpected scenario. Although a lot of previous studies did find positive significant effects for the direct effect between board gender diversity and performance, this study is thus not able to agree. Although previous literature is mainly about the relationship with firm performance, expected was that the same relationships hold for board performance, as the latter is

a result of decision-making (Ali et al., 2014) and thus the board's functioning of their roles (Hillman & Dalziel, 2003), influencing the firm's outcomes and thus performance (Boivie et al., 2016). An explanation might be that there are more mechanisms than board performance significantly explaining firm performance, which means that the literature about the effects on firm performance could differ from effects on board performance. In addition, perhaps more dimensions, next to the number of motions and amendments (dependent variable), lead to a particular board performance. Here, further research could specify the underlying dimensions and broaden literature on these mechanisms affecting board performance more to contribute to the investigation of the intervening mechanisms of the "*black box*".

However the main analysis did not find any statistical support for the direct relationship of board gender diversity with board performance, a robustness check excluding 15 observations did find a significant effect. Here, observations containing a lower percentage (<50 percent) of static frames per meeting the API algorithm has been able to calculate scores for are excluded, meaning that the meetings with less affect scores (represented in percentages) are excluded from the sample. This robustness check implies that for better represented meetings, in terms of percentages of affect scores calculated, the direct effect of board gender diversity on board performance is significantly detected. This implies that the relationship of board gender diversity – board performance might be sensitive for measurement methods. Therefore, this relationship is thus still interesting to be investigated. Further research could ensure using better quality videos and/or static frames (only the right people in frames, with the right angle and light etcetera), and/or including only frames representing the actual time that motions and amendments are discussed, instead of including the whole meeting. This in order to get a higher percentage of affect scores calculated by the API algorithm, and/or to enlarge the percentage of frames where a decision-making process is captured, resulting in a more precise data analysis.

Lastly, the mediating (indirect) effect of affect intensity on the board gender diversity – board performance relationship could not be statically proven in this study, as a logically result of the first and second hypotheses being rejected. Three explanations for this may be provided. Firstly, this study is the first study on affect intensity within the context of the board and board performance on this scale. Consequently, the Dutch water management authority's boards are possibly not aware of the importance of the availability and/or quality of their videos for, e.g., research purposes, resulting in a smaller sample size than could be theoretically possible and less representing affect measurements per meeting. Secondly, there is not a very large amount of literature that could have been used creating the theoretical framework for the context of this study. In addition, literature on affect intensity is found to not have strict enough boundary conditions at this moment, resulting in the literature being not generalizable to all kinds of different groups and settings such as board of directors. Consequently, the theoretical framework based on existing literature is found to be not optimal enough to perform the best possible analyses and find significant results. Exploring the boundary conditions mentioned in this discussion more will help in specifying relationships in order to conduct the best possible research in the future. Lastly, research suggests that the relationship between affect intensity and decision-making performance

might be nonlinear (Seo & Barrett, 2007), as exceedingly high intensity affective states interfere direct with individual's short-termed memory capacities and their attendance abilities, possibly resulting in a lower performance in decision-making processes (Barrett, Tugade, & Engle, 2004). However, in this study this is found not the case as the squared variable of affect intensity is found non-significant in a curvilinear regression (appendix VI).

5.2 Limitations and further research

This study's results contribute to the literature in several ways and some findings could be used as starting point for further research as described in the discussion. However, there are some limitations in this study as well, leading to suggestions for further research. To start with, further research could investigate the mediating effect of affect intensity in the board gender diversity – board performance relationship using different methods to enrich the literature on this new perspective within boards even more, adding up to the findings of this study. First, the level of affect intensity could be measured using a different method. For example, FaceReader, a program investigating affect by analysing videos, could be used. Second, the level of affect intensity could be measured using human measurements by questioning the board members' affective experiences, instead of measuring the expressed affective states by algorithms. Third, the "*black box*" with regard to the underlying mechanisms between board (gender) diversity and performance needs to be explored more and in different ways to understand how boards increase their performance. Possibly, the inclusion of valence could provide a more complete model. Although the axes of the circumplex model of affect (Russell, 1980) are argued to remain independent of each other (Thayer & Miller, 1988), both valence and affect intensity are defined as subjective affective experiences (Russell, 1989) and might therefore be more correlated in practice than theorized. Next, the role of culture should not be underestimated. Culture could have an effect on the underlying dimensions between board (gender) diversity and board performance, addressing possible effects of cultural differences in different studies. For instance, in a culture that is very open to discussions, individual board members are making decisions in order to get the best possible outcomes for the organization, regardless of their own affective state. Here, affect intensity will rarely be associated with more emotional contagion which eventually is expected to influence board performance. However, in other cultures the level of affect intensity could have a higher impact on emotional contagion, resulting in a higher level of a group's affective composition, resulting in affect intensity having influence on board performance. In addition, the dependent variable in this study is measured counting the quantitative number of motions and amendments discussed within one particular meeting. Here, board performance is thus measured per meeting. As literature on firm performance is mostly measured on year-level, this study might be too narrow in terms of measured performance. However, as not all Dutch water management authorities have started displaying their board meetings online or have

started this only recently, not enough data could have been captured for this study to investigate the board's performance on year-level. It might be possible that this kind of video analysing studies could be conducted more in the future, as more and more data gets available. Last, the context of this study is a very specific one. Therefore, the generalizability to other industries may be complicated. Since the general board members are mostly elected externally, the results of the study cannot be interpreted without considering its context. Moreover, the (board) performance of water management authority directors is dependent on different performance indicators than, for instance, directors of a large multinational.

5.3 Practical relevance, managerial implications, and recommendations

Although this study is not able to accept any of the hypotheses, it is offering some implications for practice since the context of this study allows to interpret research results in low-biased environments. As mentioned before, directors are elected publicly by the residents of the water management authority's area or via stakeholder positions, which ensures a low bias caused by this selection process. The most important lesson is that board gender diversity and board performance could be positively related, however this is only found by the robustness check excluding some observations with less analysed static frames (measured in percentages), and not by the main analysis. Therefore, with some caution, the selection of directors in the board can be seen as strategically important to organizations. The selection process of the board of directors can be seen in a different perspective when considering the advantages and disadvantages of board gender diversity. Since board gender diversity is found, in a robustness check, to be positively related with board performance, it could be recommended to ensure a certain number of women representing the board. This could be accomplished by stimulating women to participate in the board by radiating a gender supportive climate. In the context of this study, the government and/or the authorities could focus more on creating and/or maintaining a gender supportive climate within the organization, on the representation of women in the board, and on searching and approaching women to consider a board position.

6 – Conclusion

In order to come to a conclusion, the central question of the research is important to have in mind. Therefore, the central question will be mentioned one last time, and is as follows:

'*What is the influence of board gender diversity on board performance and does affect intensity (partially) mediate this relationship*?'

Answering the request of Hoobler et al. (2018) to investigate the "*black box*" and examine how woman's leadership affect organizations, this study tried to provide an explanation for the board gender diversity – board performance relationship by adding social-psychological aspects as a new perspective to this relationship. Hereby, this study contributes to literature in several ways, yet the most important is the inconclusive result on the direct relationship of board gender diversity on board performance and therefore automatically the mediating role of affect intensity. Previously, scholars have theorized the gender diversity – affect intensity and the affect intensity – performance relationships. However, this study is the first to empirically investigate these two relationships combined into a mediating relationship. In addition, this study is also among the firsts that brings in the social-psychological aspect of the new perspective of affect intensity within decision-making in boards. The findings suggest that the two theorized relationships do not hold in this practical context, leading to boundary conditions on the existing literature in terms of applicability. Therefore, the mediating relationship automatically is not proven either. Although the main analysis did not find a significant effect for the direct relationship of board gender diversity on board performance, a robustness check excluding some observations with less analysed static frames (measured in percentages) did find this significant relationship. This might imply that future research could find significant results considering this direct relationship by optimizing the analysable data. Also, future research could include different variables to examine the relationship and the underlying mechanisms involved to further explore the "*black box*" and add new pieces to this large puzzle to contribute to this big literature gap.

References

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics, 94*(2), 291-309.

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management science, 58*(2), 219-235.

Ali, M., Ng, Y. L., & Kulik, C. T. (2014). Board age and gender diversity: A test of competing linear and curvilinear predictions. *Journal of Business Ethics, 125*(3), 497-512.

Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams. *Academy of Management Journal, 39*(1), 123-148.

Arena, C., Cirillo, A., Mussolino, D., Pulcinelli, I., Saggese, S., & Sarto, F. (2015). Women on board: evidence from a masculine industry. *Corporate Governance, 15*(3), 339-356.

Ashforth, B. E., & Humphrey, R. H. (1995). Emotion in the workplace: A reappraisal. *Human Relations, 48*(2), 97-125.

Ashkanasy, N. M., Härtel, C. E., & Daus, C. S. (2002). Diversity and emotion: The new frontiers in organizational behavior research. *Journal of management, 28*(3), 307-338.

Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal, 10*(S1), 107-124.

Barkema, H. G., & Shvyrkov, O. (2007). Does top management team diversity promote or hamper foreign expansion? *Strategic Management Journal, 28*(7), 663-680.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management, 17*(1), 99-120.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology, 51*(6), 1173.

Barrett, L. F. (1998). Discrete emotions or dimensions? The role of valence focus and arousal focus. *Cognition & Emotion, 12*(4), 579-599.

Barrett, L. F., Tugade, M. M., & Engle, R. W. (2004). Individual differences in working memory capacity and dual-process theories of the mind. *Psychological bulletin, 130*(4), 553.

Barsade, S. G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly, 47*(4), 644-675.

Bartel, C. A., & Saavedra, R. (2000). The collective construction of work group moods. *Administrative Science Quarterly, 45*(2), 197-231.

Baysinger, B., & Hoskisson, R. E. (1990). The composition of boards of directors and strategic control: Effects on corporate strategy. *Academy of Management Review, 15*(1), 72-87.

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics, 97*(2), 207-221.

Bhagat, S., Brickley, J. A., & Lease, R. C. (1985). Incentive effects of stock purchase plans. *Journal of financial economics, 14*(2), 195-215.

Bilimoria, D. (2000). Building the business case for women corporate directors. In *Women on corporate boards of directors* (pp. 25-40): Dordrecht: Springer.

Bilimoria, D. (2006). The relationship between women corporate directors and women corporate officers. *Journal of managerial issues*, 47-61.

Blevins, D. P., Tsang, E. W., & Spain, S. M. (2015). Count-based research in management: Suggestions for improvement. *Organizational Research Methods, 18*(1), 47-69.

Boeker, W. (1997). Executive migration and strategic change: The effect of top manager movement on product-market entry. *Administrative Science Quarterly*, 213-236.

Boivie, S., Bednar, M. K., Aguilera, R. V., & Andrus, J. L. (2016). Are boards designed to fail? The implausibility of effective board monitoring. *Academy of Management Annals, 10*(1), 319-407.

Bowers, C. A., Pharmer, J. A., & Salas, E. (2000). When member homogeneity is needed in work teams: A meta-analysis. *Small group research, 31*(3), 305-327.

Brewer, M. B. (1979). In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological bulletin*, *86*(2), 307.
Brewer, M. B., & Brown, R. J. (1998). Intergroup Relations. S. 554–594 in: Daniel T. Gilbert, Susan T. Fiske und Gardner Lindzey (Hg.): The Handbook of Social Psychology. In: Boston, MA: McGraw-Hill.
Choudhury, P., Wang, D., Carlson, N. A., & Khanna, T. (2019). Machine learning approaches to facial and text analysis: Discovering CEO oral communication styles. *Strategic Management Journal*, *40*(11), 1705-1732.
Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of management*, *23*(3), 239-290.
Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of financial economics*, *87*(2), 329-356.
Dalton, D. R., & Dalton, C. M. (2011). Integration of micro and macro studies in governance research: CEO duality, board composition, and financial performance. *Journal of management*, *37*(2), 404-411.
Dalton, D. R., Hitt, M. A., Certo, S. T., & Dalton, C. M. (2007). 1 The fundamental agency problem and its mitigation: independence, equity, and the market for corporate control. *The academy of management annals*, *1*(1), 1-64.
Daniels, K. (1999). Affect and strategic decision making. *The Psychologist*, *12*(1), 24-29.
Delgado-García, J. B., & De La Fuente-Sabaté, J. M. (2010). How do CEO emotions matter? Impact of CEO affective traits on strategic and performance conformity in the Spanish banking industry. *Strategic Management Journal*, *31*(5), 562-574.
Di Stefano, G., King, A. A., & Verona, G. (2014). Kitchen confidential? Norms for the use of transferred knowledge in gourmet cuisine. *Strategic Management Journal*, *35*(11), 1645-1670.
Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of personality and social psychology*, *17*(2), 124.
Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate governance: An international review*, *11*(2), 102-111.
Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The journal of law and Economics*, *26*(2), 301-325.
Feldman, L. A. (1995). Valence focus and arousal focus: Individual differences in the structure of affective experience. *Journal of personality and social psychology*, *69*(1), 153.
Finkelstein, S., & Hambrick, D. (1996). *Strategic leadership: Top Executives and Their Effects on Organizations*: St. Paul: West Educational Publishing.
Fondas, N., & Sassalos, S. (2000). A different voice in the boardroom: How the presence of women directors affects board influence over management. *Global focus*, *12*(2), 13-22.
Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, *24*(3), 489-505.
Forgas, J. P. (1990). Affective influences on individual and group judgments. *European journal of social psychology*, *20*(5), 441-453.
Forgas, J. P. (1992). Affect in social judgments and decisions: A multiprocess model. In *Advances in experimental social psychology* (Vol. 25, pp. 227-275): Elsevier.
Forgas, J. P. (1995). Mood and judgment: the affect infusion model (AIM). *Psychological bulletin*, *117*(1), 39.
Fujita, F., Diener, E., & Sandvik, E. (1991). Gender differences in negative affect and well-being: the case for emotional intensity. *Journal of personality and social psychology*, *61*(3), 427.
Gabrielsson, J., & Huse, M. (2004). Context, behavior, and evolution: Challenges in research on boards and governance. *International Studies of Management & Organization*, *34*(2), 11-36.
Gersick, C. J., Dutton, J. E., & Bartunek, J. M. (2000). Learning from academia: The importance of relationships in professional life. *Academy of Management Journal*, *43*(6), 1026-1044.
Grant Thornton. (2019). *Women in business: building a blueprint for action*. Retrieved from https://www.grantthornton.global/globalassets/global-insights---do-not-edit/2019/women-in-business/women-in-business-2019-report-grant-thornton.pdf?_ga=2.169906792.917417139.1552997269-818222009.1509693774

Grossman, M., & Wood, W. (1993). Sex differences in intensity of emotional experience: a social role interpretation. *Journal of personality and social psychology, 65*(5), 1010.
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Harlow: Pearson Education Limited.
Hambrick, D. C., Cho, T. S., & Chen, M.-J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, 659-684.
Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review, 9*(2), 193-206.
Harrison, D. A., & Klein, K. J. (2007). What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review, 32*(4), 1199-1228.
Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: Time and the effects of surface-and deep-level diversity on work group cohesion. *Academy of Management Journal, 41*(1), 96-107.
Harrison, D. A., & Sin, H. (2006). What is diversity and how should it be measured. *Handbook of workplace diversity*, 191-216.
Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review, 28*(3), 383-396.
Hillman, A. J., Shropshire, C., & Cannella Jr, A. A. (2007). Organizational predictors of women on corporate boards. *Academy of Management Journal, 50*(4), 941-952.
Hinsz, V. B., Tindale, R. S., & Vollrath, D. A. (1997). The emerging conceptualization of groups as information processors. *Psychological bulletin, 121*(1), 43.
Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal, 44*(1), 13-28.
Hoobler, J. M., Masterson, C. R., Nkomo, S. M., & Michel, E. J. (2018). The business case for women leaders: Meta-analysis, research critique, and path forward. *Journal of management, 44*(6), 2473-2499.
Hurst, D. K., Rush, J. C., & White, R. E. (1989). Top management teams and organizational renewal. *Strategic Management Journal, 10*(S1), 87-105.
Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal, 38*(3), 635-672.
Ibarra, H. (1997). Paving an alternative route: Gender differences in managerial networks. *Social psychology quarterly*, 91-102.
Jackson, S. E. (1991). *Team composition in organizational settings: Issues in managing an increasingly diverse work force.* Paper presented at the Symposium on Group Productivity and Process, 1989, Texas A & MU, College Station, TX, US.
Jarvis, L. C. (2017). Feigned versus felt: Feigning behaviors and the dynamics of institutional logics. *Academy of Management Review, 42*(2), 306-333.
Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict and performance in workgroups. *Administrative Science Quarterly, 44*(4), 741-763.
Jensen, M. C., & Meckling, W. H. (1979). Theory of the firm: Managerial behavior, agency costs, and ownership structure. In *Economics social institutions* (pp. 163-231): Springer.
Jia, M., & Zhang, Z. (2013). Critical mass of women on BODs, multiple identities, and corporate philanthropic disaster response: Evidence from privately owned Chinese firms. *Journal of Business Ethics, 118*(2), 303-317.
Kanter, R. M. (1977). Some effects of proportions on group life. In *The gender gap in psychotherapy* (pp. 53-78): Springer.
Kelly, J. R., & Barsade, S. G. (2001). Mood and emotions in small groups and work teams. *Organizational behavior and human decision processes, 86*(1), 99-130.
Kent, R. L., & Moss, S. E. (1994). Effects of sex and gender role on leader emergence. *Academy of Management Journal, 37*(5), 1335-1346.
Kilduff, M., Angelmar, R., & Mehra, A. (2000). Top management-team diversity and firm performance: Examining the role of cognitions. *Organization Science, 11*(1), 21-34.

Kisfalvi, V. (2000). The threat of failure, the perils of success and CEO character: Sources of strategic persistence. *Organization Studies, 21(3), 611-639.*
Konrad, A. M., Kramer, V., & Erkut, S. (2008). The impact of three or more women on corporate boards. *Organizational dynamics, 37*(2), 145-164.
Krishnan, H. A., & Park, D. (2005). A few good women—on top management teams. *Journal of Business Research, 58*(12), 1712-1720.
Kuppens, P., Tuerlinckx, F., Russell, J. A., & Barrett, L. F. (2013). The relation between valence and arousal in subjective experience. *Psychological bulletin, 139*(4), 917.
Larsen, R. J., & Diener, E. (1987). Affect intensity as an individual difference characteristic: A review. *Journal of Research in personality, 21*(1), 1-39.
Li, J., & Hambrick, D. C. (2005). Factional groups: A new vantage on demographic faultlines, conflict, and disintegration in work teams. *Academy of Management Journal, 48*(5), 794-813.
Luciano, M. M., Nahrgang, J., & Shropshire, C. (2020). Strategic leadership systems: viewing top management teams and boards of directors from a multiteam systems perspective. *Academy of Management Review*.
Maitlis, S., & Ozcelik, H. (2004). Toxic decision processes: A study of emotion and organizational decision making. *Organization Science, 15*(4), 375-393.
Maznevski, M. L. (1994). Understanding our differences: Performance in decision-making groups with diverse members. *Human Relations, 47*(5), 531-552.
Microsoft. (n.d.). Face List. Retrieved from https://docs.microsoft.com/bs-latn-ba/rest/api/cognitiveservices/face/facelist
Midavaine, J., Dolfsma, W. & Aalbers, R. (2016). Board diversity and R&D investment. *Management Decision, 54*(3), 558-569.
Miller, C. C., Burke, L. M., & Glick, W. H. (1998). Cognitive diversity among upper-echelon executives: implications for strategic decision processes. *Strategic Management Journal, 19*(1), 39-58.
Miller, T., & del Carmen Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity–firm performance relationship. *Journal of Management studies, 46*(5), 755-786.
Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review, 21*(2), 402-433.
Mizruchi, M. S. (1983). Who controls whom? An examination of the relation between management and boards of directors in large American corporations. *Academy of Management Review, 8*(3), 426-435.
Munoz-de-Escalona, E., & Canas, J. J. (2017). *Online measuring of available resources*. Paper presented at the H-Workload 2017: The
first international symposium on human mental workload, Dublin Institute of Technology, Dublin, Ireland, June 28-30.
Murphy, S. A., & McIntyre, M. L. (2007). Board of director performance: a group dynamics perspective. *Corporate Governance, 7*(2), 209-224.
Palia, D., & Lichtenberg, F. (1999). Managerial ownership and firm performance: A re-examination using productivity measurement. *Journal of Corporate finance, 5*(4), 323-339.
Pelled, L. H. (1996). Demographic diversity, conflict, and work group outcomes: An intervening process theory. *Organization Science, 7*(6), 615-631.
Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the black box: An analysis of work group diversity, conflict and performance. *Administrative Science Quarterly, 44*(1), 1-28.
Pennings, J. M., Lee, K., & Witteloostuijn, A. V. (1998). Human capital, social capital, and firm dissolution. *Academy of Management Journal, 41(4), 425-440.*
Pfeffer, J. (1972). Size and composition of corporate boards of directors: The organization and its environment. *Administrative Science Quarterly*, 218-228.
Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, instruments, & computers, 36*(4), 717-731.

Preacher, K. J., & Hayes, A. F. (2008a). Assessing mediation in communication research. *The Sage Sourcebook of Advanced Data Analysis Methods for Communication Research*, 13-54.
Preacher, K. J., & Hayes, A. F. (2008b). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879-891.
Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate behavioral research, 42*(1), 185-227.
Ruderman, M. N., Ohlott, P. J., Panzer, K., & King, S. N. (2002). Benefits of multiple roles for managerial women. *Academy of Management Journal, 45*(2), 369-386.
Russell, J. A. (1980). A circumplex model of affect. *Journal of personality and social psychology, 39*(6), 1161.
Russell, J. A. (1989). Measures of emotion. In *The measurement of emotions* (pp. 83-111): Elsevier.
Schmidt, A. F., & Finan, C. (2018). Linear regression and the normality assumption. *Journal of Clinical Epidemiology, 98, 146-151*. doi:https://doi.org/10.1016/j.jclinepi.2017.12.006
Seo, M.-G., & Barrett, L. F. (2007). Being emotional during decision making—good or bad? An empirical investigation. *Academy of Management Journal, 50*(4), 923-940.
Shehata, N., Salhin, A., & El-Helaly, M. (2017). Board diversity and firm performance: evidence from the UK SMEs. *Applied Economics, 49*(48), 4817-4832.
Shrader, C. B., Blackburn, V. B., & Iles, P. (1997). Women in management and firm financial performance: An exploratory study. *Journal of managerial issues*, 355-372.
Singh, V., & Vinnicombe, S. (2004). Why so few women directors in top UK boardrooms? Evidence and theoretical explanations. *Corporate governance: An international review, 12*(4), 479-488.
Smith, N., Smith, V., & Verner, M. (2005). Do women in top management affect firm performance? A panel study of 2,500 Danish firms. *International Journal of productivity and Performance management, 55*(7).
So, J., Achar, C., Han, D., Agrawal, N., Duhachek, A., & Maheswaran, D. (2015). The psychology of appraisal: Specific emotions and decision-making. *Journal of Consumer Psychology, 25*(3), 359-371.
Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology, 13*, 290-312.
Staw, B. M., & Barsade, S. G. (1993). Affect and managerial performance: A test of the sadder-but-wiser vs. happier-and-smarter hypotheses. *Administrative Science Quarterly, 38*(2), 304-331.
Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review, 20*(3), 571-610.
Tajfel, H., & Turner, J. C. (1982). The social identity theory of group behavior. In *The Social Psychology of Intergroup Relations* (pp. 33-47): The Annual review of Psychology.
Tajfel, H., Turner, J. C., Austin, W. G., & Worchel, S. (1979). An integrative theory of intergroup conflict. *Organizational identity: A reader, 56*, 65.
Tharenou, P. (2001). Going up? Do traits and informal social processes predict advancing in management? *Academy of Management Journal, 44*(5), 1005-1017.
Thayer, J. F., & Miller, M. L. (1988). Further evidence for the independence of hedonic level and emotional intensity. *Personality and individual differences, 9*(2), 425-426.
Torchia, M., Calabrò, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of Business Ethics, 102*(2), 299-317.
Triana, M. d. C., Miller, T. L., & Trzebiatowski, T. M. (2014). The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science, 25*(2), 609-632.
Triandis, H. C., Kurowski, L. L., & Gelfand, M. J. (1994). Workplace diversity.
Tukey, J. W. (1962). The future of data analysis. *The annals of mathematical statistics, 33*(1), 1-67.
Unie van Waterschappen. (n.d.). Waterschappen. Retrieved from https://www.waterschappen.nl
Van Knippenberg, D., De Dreu, C. K., & Homan, A. C. (2004). Work group diversity and group performance: an integrative model and research agenda. *Journal of applied Psychology, 89*(6), 1008.
Van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. *Annu. Rev. Psychol., 58*, 515-541.

Watson, W. E., Johnson, L., & Merritt, D. (1998). Team orientation, self-orientation, and diversity in task groups: Their connection to team performance over time. *Group & organization management, 23*(2), 161-188.

Westphal, J. D. (1999). Collaboration in the boardroom: Behavioral and performance consequences of CEO-board social ties. *Academy of Management Journal, 42*(1), 7-24.

Williams, K. Y., & O'Reilly III, C. A. (1998). Demography and diversity in organizations: a review of 40 years of research. *Research in organizational behavior, 20*, 77-140.

Williams, M., & Polman, E. (2015). Is it me or her? How gender composition evokes interpersonally sensitive behavior on collaborative cross-boundary projects. *Organization Science, 26*(2), 334-355.

Wundt, W. (1924). *An introduction to psychology (Pintner, R., Trans.)*. London: Allen & Unwin. (Original work published 1912).

Yu, Z., & Zhang, C. (2015). *Image based static facial expression recognition with multiple deep network learning.* Paper presented at the Proceedings of the 2015 ACM on international conference on multimodal interaction.

Zona, F., & Zattoni, A. (2007). Beyond the black box of demography: Board processes and task effectiveness within Italian firms. *Corporate governance: An international review, 15*(5), 852-864.

Appendices

I – Decisions list (example)

Besluitenlijst

Aan
Algemeen bestuur

Kopie aan
Dijkgraaf en Directie

Datum en tijd bespreking
24 mei 2018, 19.30 uur

Plaats bespreking
Amsterdam

Aanwezig
Zie overzicht aanwezigen

Datum
21 juni 2018

Contactpersoon
D. Koolstra
daniel.koolstra@waternet.nl

Doorkiesnummer
020-608 57 82

Ons kenmerk
18.033127

Onderwerp bespreking
Algemeen bestuur van het waterschap Amstel, Gooi en Vecht

Overzicht aanwezigen:
Secretaris-directeur: dhr. Kelderman
Voor de fractie of categorie van:
Bedrijven: dhr. Rosman, dhr. Van Luijt, mw. Burgman
CDA: dhr. Korrel, dhr. De Jong, dhr. Zwanenburg
Lijst Schönberger: dhr. Schönberger
Natuurterreinen: dhr. Massop
Ongebouwd: dhr. Kruiswijk, dhr. Van Rijn, dhr. Hooijer
PvdA: mw. van Vliet-Smit, mw. De Buisonjé, dhr. Steenwinkel (voorzitter), dhr. De Vries, dhr. G.J. Wisse
PvdD: dhr. Van Lierop, dhr. Van der Kraan
Lijst Spils: dhr. Spils
SWV: dhr. Bennekum
VVD: dhr. Smit, dhr. Went, mw. Van der Linde, dhr. L.A. Wieringa
WN: dhr. Dulfer, dhr. Mager, dhr. Hoek, mw. Quené
Van ambtelijke zijde:
mw. De Haas (directie Waternet), dhr. Koolstra (bestuursondersteuning)

1 Opening en vaststelling agenda

De voorzitter opent de vergadering.

De agenda wordt vastgesteld.

2 Mededelingen

Bericht van verhindering is ontvangen van dhr. Prins (50Plus), dhr. De Jong (VVD) en dhr. Brink (PvdD). Dhr. Van den Top is afwezig vanwege een handelsmissie naar India met onder andere de premier en vier ministers.

In september is de Amsterdam City Swim, het Algemeen bestuur wordt opgeroepen mee te zwemmen, aanmelden kan door een mail te sturen naar acs@waternet.nl.

Dhr. Dulfer presenteert het boekje Amsterdam Rainproof. Hierin zijn de resultaten van de afgelopen vier jaar opgenomen en een overzicht van wat

waterschap amstel gooi en vecht
Korte Ouderkerkerdijk 7 Amsterdam
Postbus 94370 1090 GJ Amsterdam
T 0900 93 94 KvK 41216593
agv.nl

overheid, burgers en bedrijven kunnen doen voor klimaatadaptatie. Duo-leden kunnen bij het bestuurssecretariaat een exemplaar aanvragen.

Dhr. Hoek (WN) meldt dat hij gevraagd is namens GroenLinks wethouder te worden in Almere. Mocht hij door de gemeenteraad geïnstalleerd worden dan zal hij zijn AB-lidmaatschap neerleggen.

Het Algemeen bestuur neemt kennis van de gedane mededelingen.

3 Toegezonden informatie AB-leden

Het Algemeen bestuur neemt kennis van de toegezonden informatie.

4 Besluitenlijst van de AB-vergadering van 19 april 2018

De besluitenlijst wordt vastgesteld.

5 Strategie microverontreinigingen (BBV18.0127)

Aan het Algemeen bestuur wordt gevraagd de strategie microverontreinigingen vast te stellen. Deze strategie bevat nieuw beleid, ambitieniveaus en worden maatregelen beschreven voor de aanpak van geneesmiddelen, gewasbeschermingsmiddelen en microplastics.

Motie 1:
Verzoekt het Dagelijks bestuur:
1. Een onderzoek uit te voeren naar de prioritering en realisatie van een vierde zuiveringsstap op alle zuiveringen in beheer bij AGV, uiterlijk in 2035. Hierbij dient nader in kaart gebracht te worden de verwachte kosten, effecten en consequenties voor de prioritering in het huidige Masterplan Zuiveringen.
2. De resultaten nog voor de waterschapsverkiezingen aan het Algemeen bestuur voor te leggen.

Motie 2:
Verzoekt het Dagelijks bestuur van het waterschap:
1. De handhaving op de directe ongezuiverde lozing van gewasbeschermingsmiddelen uit de glastuinbouw zeer voortvarend op te pakken in samenwerking met de gemeente.
2. Het Algemeen bestuur van zijn inspanningen eind 2018 te informeren.
3. In overleg met de Unie te treden over de aanpak van andere middelen, die nu nog niet onder deze wet vallen maar mogelijk ook schadelijk zijn voor insecten.

Amendement 1:
De strategie microverontreinigingen als volgt aan te passen

Schrappen op p. 23/24

Monitoring waterkwaliteit met effectmetingen, 15 meetpunten Jaarlijkse monitoring met effectmetingen op 10 vaste en 5 wisselende meetpunten voor een goede beoordeling van de waterkwaliteit en onderbouwing van verdere maatregelen.	
Stofgroep:	Alle organische microverontreinigingen, inclusief gewasbeschermingsmiddelen en geneesmiddelen
Financieringsbron:	Watersysteemheffing
Kosten:	€ 65.000 per jaar

Toevoegen op p. 23/24

Monitoring waterkwaliteit met effectmetingen, 30 meetpunten Jaarlijkse monitoring met effectmetingen op 20 vaste en 10 wisselende meetpunten voor een goede beoordeling van de waterkwaliteit en onderbouwing van verdere maatregelen. Onder andere meetpunten bij alle rwzi's.	
Stofgroep:	Alle organische microverontreinigingen, inclusief gewasbeschermingsmiddelen en geneesmiddelen
Financieringsbron:	Watersysteemheffing
Kosten:	€ 130.000 per jaar

En het Dagelijks bestuur op te dragen de tekst van de strategie dienovereenkomstig te wijzigen en de alsdan gewijzigde Strategie Microverontreinigingen ter kennisname voor te leggen aan het Algemeen bestuur.

Besluitvorming
- Motie 1: met algemene stemmen aangenomen.
- Motie 2: voor de motie hebben gestemd Bedrijven, CDA, Groenen, Natuurterreinen, PvdD, PvdA, SWV, Spils, VVD en WN. Ongebouwd wordt geacht tegen te hebben gestemd.
- Amendement 1: voor het amendement hebben gestemd Bedrijven, CDA, Groenen, Natuurterreinen, PvdA, Spils, WN en 1 van PvdD. Ongebouwd, SWV en 1 van PvdD worden geacht tegen te hebben gestemd.

Resultaat besluitvorming
Met inachtneming van de aangenomen wijzigingen besluit het Algemeen bestuur de strategie microverontreinigingen vast te stellen.

6 Uitvoeringskrediet Modernisering poldergemaal Bovenkerkerpolder (BBV18.0155)

Er wordt meteen overgegaan tot besluitvorming.

Resultaat besluitvorming
Het Algemeen bestuur besluit een uitvoeringskrediet van €2.535.000 (inclusief btw) voor het moderniseren van poldergemaal Bovenkerkerpolder beschikbaar te stellen.

7 Vaststellen subsidieregelingen bodem en water (BBV18.0220)

Aan het Algemeen bestuur wordt gevraagd de subsidieregelingen vast te stellen die uitwerking geven aan de doelen van AGV voor 'KRW overig water en agrarisch waterbeheer'. AGV stimuleert met deze regelingen het aanpakken van knelpunten in het watersysteem, het verbeteren van de bodem- en waterkwaliteit en biodiversiteit.

Resultaat besluitvorming
Het Algemeen bestuur besluit:
- de 'Subsidieregeling Samenwerken aan Bodem & Water 2018-2021 Noord-Holland' vast te stellen;
- de 'Subsidieregeling Regionaal partnerschap voor water en bodem AGV Utrecht en Zuid-Holland' vast te stellen.

8 Commissie kunstbeleid: instelling, werkwijze en kaders (BBV18.0160)

Aan het Algemeen bestuur wordt gevraagd in te stemmen met instelling van een commissie kunstbeleid. Hiermee kan het waterschap op het gebied van kunst en cultuur initiatieven ontwikkelen en ondersteunen die het verhaal van het water op een andere manier onder de aandacht brengen bij nieuwe doelgroepen in ons beheergebied.

Resultaat besluitvorming
Het Algemeen bestuur besluit:
- tot instelling van een commissie kunstbeleid bestaande uit externe leden aangewezen door de dijkgraaf, in afstemming met de klankbordgroep kunstbeleid;
- tot vaststelling van de werkwijze van de commissie kunstbeleid;
- tot vaststelling van de afwegingskaders ten behoeve van het werk van de in te stellen commissie kunstbeleid;
- een vergadervergoeding toe te kennen aan de externe leden van de commissie kunstbeleid;
- tot instelling van een klankbordgroep kunstbeleid;
- tot evaluatie van het werk en de werkwijze van de commissie kunstbeleid drie jaar naar dit AB-besluit.

Besluitenlijst

9 Verantwoording fractievergoeding 2017 (BBV18.0229)

Er wordt meteen overgegaan tot besluitvorming.

Resultaat besluitvorming
Het Algemeen bestuur stelt na lezing van de adviezen van de secretaris-directeur en het Seniorenconvent de hoogte van de volgende bedragen vast:

a. de uitgaven van een fractie die in 2017 uit fractievergoeding bekostigd zijn
b. de wijziging van de reserve
c. de resterende reserve (zijnde het beginsaldo 1 januari 2018)
d. de verrekening tussen de in onderdeel a. genoemde uitgaven en het ontvangen voorschot en, voor zover nodig, de hoogte van de terugvordering van ontvangen voorschotten.

10 Sluiting

De voorzitter bedankt dhr. Hoek voor de debatten die zij de afgelopen jaren hebben mogen voeren.

De voorzitter sluit de vergadering.

II – Python scripts

II-a Static frames to JSON script

```
import requests
import json
import os
import time
import csv
import pandas as pd
from pandas.io.json import json_normalize

# set to your own subscription key value
subscription_key = 'cef52ef38fc647bca2e8b129c88ab51f'
assert subscription_key

# replace <My Endpoint String> with the string from your endpoint URL
face_api_url = 'https://westeurope.api.cognitive.microsoft.com/face/v1.0/detect'

# replace C:/Test/ with the directory in which the photos are
files_dir = '/Users/SR/Desktop/Python_input'
files = os.listdir(files_dir)

# the following lines create JSON files out of each image
for f in files:
     if f.lower().endswith(('.png', '.jpg', '.jpeg')):
         image_path = files_dir + '/' + f
         image_data = open(image_path, "rb").read()
         headers = {'Ocp-Apim-Subscription-Key': subscription_key, 'Content-Type': 'application/octet-stream'}
         params = {
                     'returnFaceId': 'true',
                     'returnFaceLandmarks': 'false',
         'returnFaceAttributes': 'emotion',
         }

         response = requests.post(face_api_url, params=params,
                                  headers=headers, data=image_data)
         analysis = response.json()
         print(analysis)
         with open(files_dir + '/' + f + '.json', 'w', encoding = "utf-8") as f:
                                 json.dump(response.json(), f)
time.sleep(1)
```

II-b JSON files to CSV script

```
import requests
import json
import os
import csv
import pandas as pd
from pandas.io.json import json_normalize

# replace C:/Test/ with the directory in which the photos are
files_dir = '/Users/SR/Desktop/Python_input'
files = os.listdir(files_dir)


# the following lines transform the JSONs to a CSV
for g in files:
     print(g)
     if g.lower().endswith(('.json')):
          print(g)
          with open(files_dir + '/' + g) as h:
               data = json.load(h)
          df = json_normalize(data).assign(filename=g)
          print(df)
# replace C:\Test\output_u.csv with the filename you want to have
          df.to_csv('/Users/SR/Desktop/Python_output/output.csv', index=True, mode='a')
```

III – API output (examples)

III-a JSON output


```
[{"faceId": "51ef45fc-33fd-4714-934d-024541763c7f", "faceRectangle":
{"top": 134, "left": 474, "width": 173, "height": 173}, "faceAttributes":
{"emotion": {"anger": 0.214, "contempt": 0.0, "disgust": 0.0, "fear": 0.0,
"happiness": 0.0, "neutral": 0.784, "sadness": 0.001, "surprise": 0.0}}}]
```


III-b CSV output

	FaceId	Anger	Contempt	Disgust	Fear	Happiness	Neutral	Sadness	Surprise	Filename
0	30cc4ce0-ed	0.001	0.001	0.0	0.0	0.0	0.967	0.03	0.001	AGV-190919-Z
0	ee51d572-97	0.002	0.001	0.001	0.0	0.023	0.956	0.018	0.0	AGV-190919-Z
0	ec191885-ae	0.004	0.018	0.0	0.0	0.0	0.971	0.007	0.0	AGV-190919-T
0	2968cfde-31	0.0	0.003	0.0	0.0	0.935	0.062	0.0	0.0	AGV-190919-T
0	2a06f01b-1d	0.0	0.001	0.0	0.0	0.913	0.086	0.0	0.0	AGV-190919-T
0	104a6b5b-3c	0.001	0.001	0.0	0.0	0.0	0.971	0.027	0.0	AGV-190919-T
0	e3f61197-97	0.001	0.001	0.001	0.0	0.221	0.771	0.003	0.001	AGV-190919-Z
0	d63bfbbc-3b	0.0	0.006	0.001	0.0	0.007	0.94	0.046	0.0	AGV-190919-Z
0	241f01d6-e0	0.0	0.007	0.0	0.0	0.034	0.958	0.0	0.001	AGV-190919-T
0	aa3e7fc1-7a	0.003	0.021	0.0	0.0	0.0	0.936	0.04	0.0	AGV-190919-M
0	8aab2097-af	0.0	0.004	0.0	0.0	0.187	0.807	0.002	0.0	AGV-190919-T
0	85456813-d7	0.0	0.0	0.0	0.0	0.0	0.998	0.002	0.0	AGV-190919-H
0	37b7882d-dc	0.0	0.0	0.0	0.001	0.065	0.853	0.005	0.076	AGV-190919-Z
0	4f34add3-44	0.0	0.008	0.0	0.0	0.229	0.761	0.001	0.0	AGV-190919-T
0	6ec65a51-70	0.0	0.005	0.0	0.0	0.0	0.991	0.003	0.0	AGV-190919-T
0	9a7095af-52	0.0	0.001	0.0	0.0	0.0	0.989	0.01	0.0	AGV-190919-M
1	51929ef4-60	0.011	0.0	0.0	0.011	0.0	0.161	0.001	0.815	AGV-190919-H
0	47580b6b-7e	0.0	0.001	0.0	0.003	0.002	0.874	0.007	0.112	AGV-190919-T
0	8ab25abc-0a	0.0	0.001	0.0	0.003	0.0	0.932	0.03	0.034	AGV-190919-M
0	0e2dd05f-61	0.0	0.0	0.0	0.0	0.0	0.996	0.004	0.0	AGV-190919-T
0	863e3cf5-d0	0.003	0.0	0.001	0.0	0.561	0.432	0.003	0.001	AGV-190919-B
0	aa62ecbb-0e	0.0	0.004	0.001	0.0	0.063	0.908	0.024	0.0	AGV-190919-Z
0	6313a4ed-08	0.0	0.008	0.0	0.0	0.029	0.954	0.01	0.0	AGV-190919-Z
0	4ef4e9e3-76	0.0	0.0	0.0	0.0	0.0	0.999	0.0	0.001	AGV-190919-H
0	85f61009-4f	0.001	0.002	0.0	0.0	0.002	0.994	0.001	0.0	AGV-190919-T
0	5bfdf4b1-7f	0.0	0.002	0.0	0.0	0.029	0.933	0.036	0.0	AGV-190919-Z
0	c490c9fe-eb	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	AGV-190919-T
0	980b0892-19	0.0	0.017	0.0	0.0	0.003	0.974	0.005	0.0	AGV-190919-T
0	f5d28bd2-1c	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	AGV-190919-H
0	4aad638d-7f	0.001	0.0	0.0	0.0	0.002	0.995	0.001	0.001	AGV-190919-H

IV – Extended descriptive statistics

Descriptive statistics of the included variables

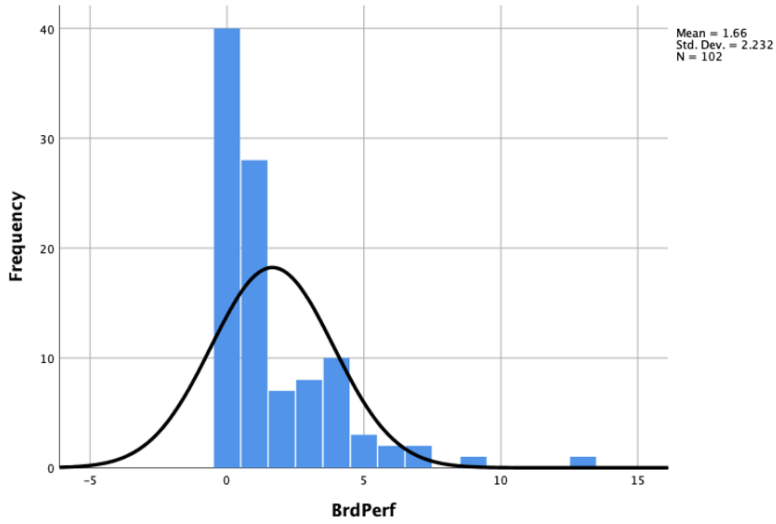
	Variable	*N*	*Mean*	*S.E. (mean)*	*S.D.*	*Range*	*Range min*	*Range max*	*Variance*	*Skewness*	*Kurtosis*
1	Board performance	102	1.660	.221	2.232	13	0	13	4.980	2.176	6.574
2	Affect intensity	102	.153	.006	.060	.503	.019	.522	.004	2.380	13.315
3	Gender diversity	102	.342	.005	.047	.173	.257	.430	.002	.528	-.571
4	Board size	102	31.620	.119	1.203	6	27	33	1.446	-2.007	6.461
5	Meeting frequency	102	10.490	.314	3.168	10	4	14	10.035	-.286	-1.339
6	Meeting duration	102	103.800	7.399	74.724	364	5	369	5583.644	.970	.711
7	Political diversity	102	.888	.001	.006	.024	.877	.901	.000	.446	-.109
8	Age diversity	102	.673	.005	.052	.192	.584	.776	.003	.230	-1.287
9	Daily board affect intensity	102	.136	.007	.066	.394	.023	.417	.004	1.488	4.454
10	Dummy FR	102	.226	.042	.420	1	0	1	.176	1.333	-.227
11	Dummy ZZ	102	.039	.019	.195	1	0	1	.038	4.819	21.646
12	Dummy HDSR	102	.088	.028	.285	1	0	1	.081	2.947	6.818
13	Dummy AGV	102	.647	.048	.480	1	0	1	.231	-.625	-1.642
14	Dummy 2013	102	.039	.019	.195	1	0	1	.038	4.819	21.646
15	Dummy 2014	102	.078	.027	.270	1	0	1	.073	3.183	8.294
16	Dummy 2015	102	.078	.027	.270	1	0	1	.073	3.183	8.294
17	Dummy 2016	102	.098	.030	.299	1	0	1	.089	2.744	5.640
18	Dummy 2017	102	.196	.040	.399	1	0	1	.159	1.554	.423
19	Dummy 2018	102	.206	.040	.406	1	0	1	.165	1.477	.184
20	Dummy 2019	102	.304	.046	.462	1	0	1	.214	.865	-1.277

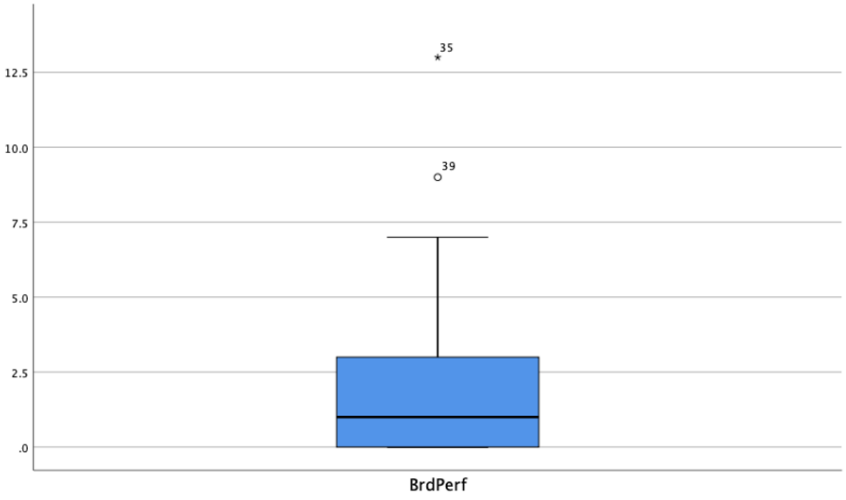
V – Winsorized variables

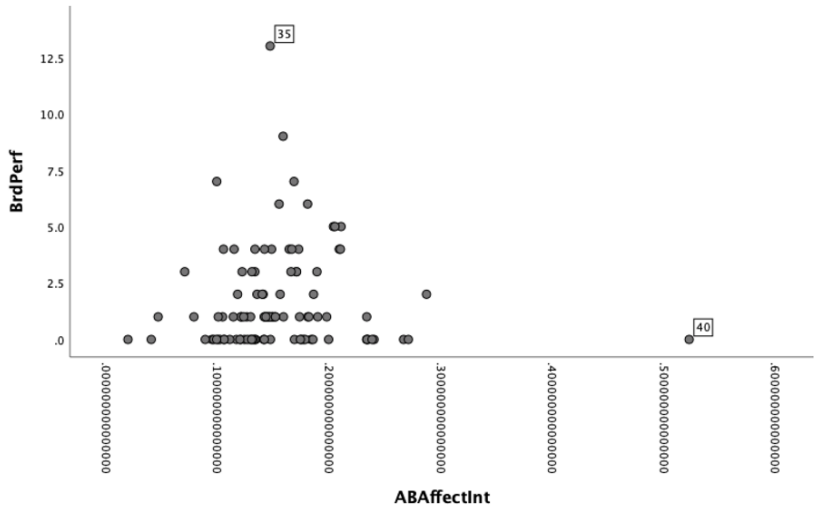
V-a Board performance

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
BrdPerf	102	0	13	1.66	.221	2.232	2.176	.239	6.574	.474
Valid N (listwise)	102									



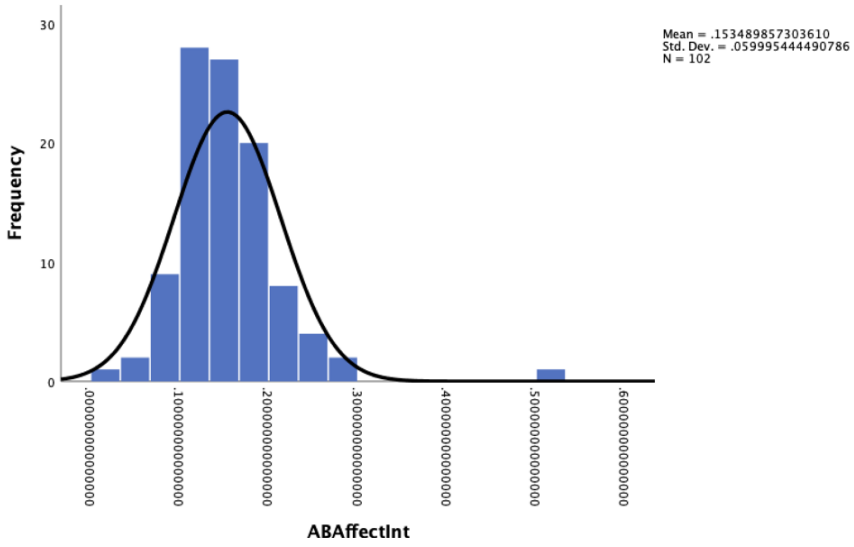


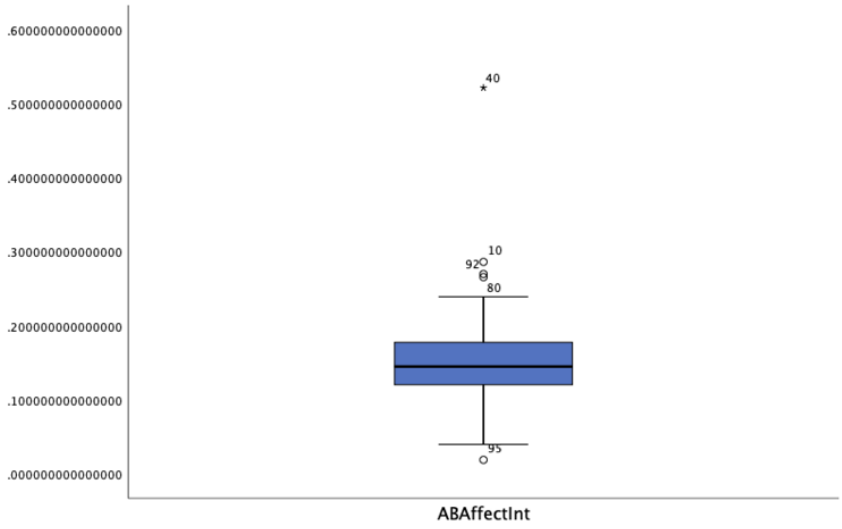


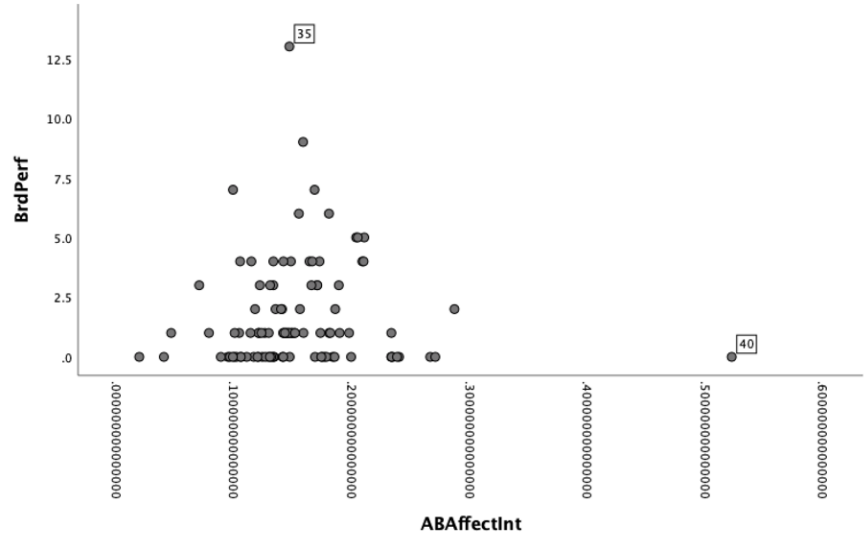
V-b Affect intensity

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
ABAffectInt	102	.018655570	.521812500	.153489857	.005940434	.059995444	2.380	.239	13.315	.474
Valid N (listwise)	102									







VI – Curvelinear regression affect intensity

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.757[a]	.573	.493	1.590	.573	7.130	16	85	.000
2	.757[b]	.573	.487	1.599	.000	.044	1	84	.834
3	.758[c]	.574	.482	1.606	.001	.178	1	83	.674

a. Predictors: (Constant), Yr2018, PolDiv, DBAffectInt, Yr2016, HDSR, Yr2015, MeetDur, Yr2017, Yr2013, ZZ, MeetFreq, GenDiv, Yr2014, FR, AgeDiv, Brdsize

b. Predictors: (Constant), Yr2018, PolDiv, DBAffectInt, Yr2016, HDSR, Yr2015, MeetDur, Yr2017, Yr2013, ZZ, MeetFreq, GenDiv, Yr2014, FR, AgeDiv, Brdsize, ABAffectInt

c. Predictors: (Constant), Yr2018, PolDiv, DBAffectInt, Yr2016, HDSR, Yr2015, MeetDur, Yr2017, Yr2013, ZZ, MeetFreq, GenDiv, Yr2014, FR, AgeDiv, Brdsize, ABAffectInt, ABAffectInt_sq

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	30.470	86.939		.350	.727
	Brdsize	1.195	.957	.644	1.248	.216
	MeetFreq	.298	.182	.423	1.642	.104
	MeetDur	.023	.003	.759	8.475	.000
	PolDiv	-92.659	97.206	-.264	-.953	.343
	AgeDiv	2.914	12.013	.068	.243	.809
	DBAffectInt	1.651	2.842	.049	.581	.563
	GenDiv	15.523	11.445	.330	1.356	.179
	FR	2.098	1.667	.395	1.259	.212
	ZZ	2.746	4.690	.240	.585	.560
	HDSR	2.906	1.554	.371	1.870	.065
	Yr2013	6.799	2.415	.594	2.815	.006
	Yr2014	4.308	2.144	.522	2.009	.048
	Yr2015	1.133	1.441	.137	.786	.434
	Yr2016	2.995	1.391	.401	2.153	.034
	Yr2017	1.722	.941	.308	1.830	.071
	Yr2018	1.917	.952	.349	2.012	.047
	ABAffectInt	2.735	8.632	.074	.317	.752
	ABAffectInt_sq	-7.624	18.081	-.099	-.422	.674

a. Dependent Variable: BrdPerf