FINANCIAL WEALTH, SOCIOEMOTIONAL WEALTH AND IPO UNDERPRICING IN FAMILY FIRMS: A TWO-STAGE GAMBLE MODEL

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FINANCIAL WEALTH, SOCIOEMOTIONAL WEALTH AND IPO UNDERPRICING IN FAMILY FIRMS: A TWO-STAGE GAMBLE MODEL

ABSTRACT

There are competing theoretical explanations and conflicting empirical evidence for the IPO underpricing phenomenon in family firms. The behavioral agency model predicts that loss-averse family firms discount their shares more than non-family firms in order to minimize losses of socioemotional wealth (SEW). By contrast, the endowment effect in prospect theory suggests that family owners maximize their financial wealth (FW) by including SEW in their perceptions of firm value and demanding a higher IPO price to relinquish it. We reconcile these seemingly incompatible predictions by adding insights on the dynamic properties of the reference point in decision framing. Conceiving IPO pricing as a two-stage gamble, we theorize that initial SEW losses entailed by the listing decision increase the disposition of family owners to underprice IPO shares to possibly offset these losses, or to "break even". In doing so, we advance the behavioral agency model with the *aversion to loss realization* logic to explain how the decision frames and preferences of family owners change during the IPO process, depending on initial losses of current SEW and new expectations of future SEW. Our analysis of 1,807 IPOs in Europe supports our theoretical expectations, clarifying the trade-off between FW and SEW and explicating the dynamic properties of mixed gambles in family firms.

Family firms are highly prevalent across countries and industries, including the majority of private firms as well as a significant proportion of publicly traded companies. A distinctive feature of family firms is that they assess strategic decisions in relation to both financial wealth (FW) and socioemotional wealth (SEW) (Gómez-Mejía, Cruz, Berrone, & De Castro, 2011; Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson, & Moyano-Fuentes, 2007). Moreover, gains in one dimension of wealth are often associated with losses in the other dimension. For example, international diversification (Gómez-Mejía, Makri, & Larraza-Kintana, 2010) and R&D investments (Chrisman & Patel, 2012) offer the prospect of FW gains but entail losses of SEW for the family. Likewise, proactive environmental investments (Berrone, Cruz, Gómez-Mejía, & Larraza-Kintana, 2010) and favorable contracts for family managers (Cruz, Gómez-Mejia, & Becerra, 2010) could increase SEW but decrease FW. These studies suggest that most strategic decisions in family firms entail a difficult trade-off

or "mixed gamble" (Martin, Gómez-Mejía, & Wiseman, 2013) involving gains and losses in two dimensions of wealth (Gómez-Mejía, Campbell, Martin, Hoskisson, Makri, & Sirmon, 2014a; Gómez-Mejía, Patel, & Zellweger, 2015). However, how family firms frame and evaluate these gambles is not as clear, and the question of how family firms make strategic decisions when both FW and SEW are at stake remains subject to considerable debate.

Lack of clarity on the trade-off between FW and SEW in family firms' decision making is particularly apparent in the context of business valuations, such as the pricing of initial public offerings (IPOs). According to the behavioral agency model (Gómez-Mejía et al., 2007; Wiseman & Gómez-Mejía, 1998), family firms are willing to forgo the FW attainable from the IPO by underpricing their initial shares up to 10% more than non-family firms to reduce the likelihood of SEW losses (Ehrhardt & Nowak, 2003; Leitterstorf & Rau, 2014). However, this view contradicts the endowment effect in prospect theory (Kahneman & Tversky, 1979; Thaler, 1980) suggesting that family owners include SEW in their perceptions of firm value (Astrachan & Jaskiewicz, 2008; Zellweger & Astrachan, 2008) and demand a price premium ranging between 22% and 75% to sell the firm to a non-family buyer compared to a family member (e.g., Zellweger, Kellermanns, Chrisman, & Chua, 2012). From this standpoint, SEW would decrease rather than increase IPO underpricing.

So, do family firms base their strategic decisions on minimizing SEW losses or maximizing FW gains? We contend that there is no universal tendency predominating in family firm decision making. Instead, we argue that the answer lies in the dynamic aspects of decision framing, the cornerstone of prospect theory and its derivatives (Kahneman & Tversky, 1979; Wiseman & Gómez-Mejía, 1998). Prior research assumes that family owners frame future outcomes as gains or losses using a static reference point that is either the level of SEW before the IPO, according to the behavioral agency model (Leitterstorf & Rau, 2014), or after the IPO, according to instant endowment in prospect theory (Tversky &

Kahneman, 1991). The different predictions may therefore reflect the use of different reference points in decision framing. However, the use of one or other reference point is only appropriate if the level of SEW is constant over the period of time under study. Yet, most strategic decisions are not isolated events, and it is possible that family owners adapt their reference point across stages of the decision process. For example, the IPO literature suggests that the book building process following the initial decision to go public is a long and highly stressful period for pre-IPO owners (Loughran & Ritter, 2002; Ritter & Welch, 2002). The IPO decision itself may entail unanticipated initial losses of SEW (Leitterstorf & Rau, 2014) that can change family owners' perceptions of current SEW. Moreover, during the IPO process family owners make critical decisions about the terms of the offering (e.g., Certo, Holcomb, & Holmes, 2009), which in turn can substantially change their expectations of future SEW. As family owners' perceptions of current and future SEW change during the IPO process, the context of the subsequent IPO pricing decision is also likely to change (Wiseman & Gómez-Mejía, 1998). Therefore, we argue that IPO pricing decisions in family firms can be better understood as a dynamic two-stage gamble: first, family owners make the decision to go public; thereafter, they adapt their reference point and address the IPO pricing decision using the new decision frame.

We extend the behavioral agency model with insights deriving from dynamic applications of prospect theory (e.g., Arkes, Hirshleifer, Jiang, & Lim, 2008; Barberis & Huang, 2001; Grinblatt & Han, 2005). This research suggests that in two-stage gamble situations, the initial outcomes influence the evaluation of subsequent decisions (Kahneman & Tversky, 1979; Thaler & Johnson, 1990). Moreover, these studies suggest that people are not only loss-averse, but also averse to realizing losses[1] (Shefrin & Statman, 1985;

[1] Aversion to loss realization refers to the disposition to "sell winners and ride losers" (Frazzini, 2006; Shefrin & Statman, 1985), and differs from the concept of loss aversion, which refers to people's tendency to avoiding future losses.

Strahilevitz & Loewenstein, 1998; Thaler & Johnson, 1990). In other words, after experiencing a loss, they do not perfectly adapt their reference point, but tend to anchor it at a higher level than their current wealth position. This triggers a disposition effect that renders risky choices more attractive, particularly those offering the opportunity to break-even (e.g., Kahneman & Tversky, 1979; Lehner, 2000; Shefrin & Statman, 1985; Thaler 1980; Thaler & Johnson, 1990). For example, Kahneman and Tversky suggest that, "A person who has not made peace with his losses is likely to accept gambles that would be unacceptable to him otherwise" (1979: 287). Based on these premises, we relax the assumption of static reference points and revisit the behavioral agency model predictions of IPO underpricing introducing the possibility that family firms adapt their reference point during the IPO process. Conceiving IPO pricing as a two-stage gamble, we envisage that *aversion to loss realization* plays a pivotal role in understanding how family firms frame and evaluate the mixed gamble underlying their strategic decisions.

We propose that greater aversion to realizing initial SEW losses increases family firms' disposition toward underpricing the IPO in an attempt to recover such losses. Conversely, if family owners adapt their reference point more promptly, the prospect of accepting the initial loss of SEW and maximizing future FW will become more attractive, leading to lower IPO underpricing. These proposed modifications bridge the different assumptions in prior research (e.g., Leitterstorf & Rau, 2014; Zellweger et al., 2012) and pave the way for more nuanced hypotheses on decision making in family firms. Building on Kahneman and Tversky's (1979) observation that reference point adaptation depends on past and present stimuli and subsequent research in behavioral economics (e.g., Lee, Park, Lee, & Wyer, 2008; Thaler & Johnson, 1990), we identify two main drivers of loss realization: initial losses of current SEW and new expectations of future SEW. First, we theorize that aversion to loss realization is stronger when the initial loss of SEW is greater, suggesting that family

firms – especially those led by a later generation family CEO – will opt for higher IPO underpricing than lone-founder firms and non-family firms. Second, we propose that higher ownership retention and more reputable underwriters will trigger more positive expectations of future SEW and increase family firm disposition toward IPO underpricing. In contrast, aversion to loss realization is reduced by negative SEW expectations associated with "hot" IPO markets, leading to lower IPO underpricing.

Our theory finds strong support in a unique dataset including 1,807 IPOs in Europe between 1995 and 2011, leading to three major contributions. First, we reconcile the conflicting predictions of the behavioral agency model and prospect theory to develop a richer understanding of the trade-off between FW and SEW in family firm IPO underpricing decisions. Our study demonstrates that neither the behavioral agency model nor the endowment effect in prospect theory tell the complete story because they fail to account for the temporal context of mixed gambles. By elucidating the temporal aspects of decision framing, our model clarifies the substitution rate between FW and SEW and explains why SEW can both add and detract from business valuation at IPO. Second, we advance the behavioral agency model by adding the aversion to loss realization logic to provide a more complete theory of strategic decisions in family firms. In particular, aversion to loss realization relaxes the assumption of static reference points in the traditional behavioral agency model, paving the way for more nuanced predictions of how the temporal context of mixed gambles – particularly initial SEW losses and future SEW expectations – can systematically influence the decision frames and strategic preferences of family firms. These theoretical refinements extend the behavioral agency model by suggesting that in two-stage gamble situations, family firms alternate their focus between SEW and FW based not only on *the firm's situation before the decision is made* (e.g., the firm's performance history, Chrisman & Patel, 2012; Gómez-Mejía et al., 2015), but also on *changes to the firm's*

situation during the decision process. Therefore, the two-stage gamble model has broad theoretical implications that call into question the results of previous research examining family firms' strategic decisions in temporal isolation, and underscore the need to study how patterns of strategic decisions unfold over time across different stages of the decision making process. Finally, our study addresses the currently limited and conflicting evidence on IPO underpricing in family firms by testing the role of critical moderators and highlighting important differences across countries. Through our theoretical and methodological refinements, we show that mixed gambles in family firms are more complex and dynamic than previously thought.

THEORETICAL BACKGROUND

SEW is defined as the pool of non-financial aspects of the firm that meet the family's social and affective needs, including the ability to exercise family control and influence, fulfill desires for belonging and identity, act altruistically toward family members, and perpetuate family values and dynasty (Berrone, Cruz, & Gómez-Mejía, 2012; Gómez-Mejía et al., 2007). The notions that family members attach socioemotional value to firm ownership and that SEW is a primary reference point for family firms constitute the intellectual roots of most current theory and research on family firms (Gómez-Mejía et al., 2011). Moreover, central to family firm research is the notion that decision making entails a trade-off or mixed gamble with some possibility of gains and losses of FW and SEW (Gómez-Mejía et al., 2014a, 2015). Researchers have recently paid increasing attention to how family firms address this trade-off to explain differences in behavior between family and non-family firms, and among family firms (Chrisman & Patel, 2012; Gómez-Mejía et al., 2011; Miller & Le Breton-Miller, 2014; Zellweger et al., 2012).

The trade-off between FW and SEW is particularly pronounced in the context of the initial pricing of firms going public (Leitterstorf & Rau, 2014; Zellweger et al., 2012). From

the financial perspective, the IPO can be an important means to finance growth and diversify the family's FW. Family owners obtain the greatest financial gain from IPOs by setting a high price. On the other hand, IPO underpricing – the market-ascribed value firm owners do not receive when their equity is sold – represents a financial loss for family owners, or "money left on the table" (Ritter, 1987; Ritter & Welch, 2002). The IPO also has major consequences for the family's SEW. First, the IPO entails a loss of SEW due to the dilution of family control that must be partly relinquished to other shareholders. The increased influence of non-family shareholders creates pressure to adhere to industry norms (Miller, Le Breton-Miller, & Lester, 2013), thus limiting family members' power and discretion to pursue particularistic goals (Berrone et al., 2012; Carney, 2005). Relatedly, the IPO makes family managers more directly accountable and liable to non-family shareholders, exposing them to both employment and compensation risks (Gómez-Mejía, Larraza-Kintana, & Makri, 2003; Gómez-Mejía, Nunez-Nickel, & Gutierrez, 2001). Finally, the IPO may reduce the family's SEW by weakening the identity linkages between the family and the firm (Deephouse & Jaskiewicz, 2013), and reducing the legitimacy and importance of family values within the firm (Carney, 2005).

As the financial benefits attainable through an IPO entail potential losses of SEW for the family, the IPO pricing decision offers a privileged opportunity to define and measure the rate of substitution between FW and SEW in family firm decision making. However, empirical studies have found inconsistent results. Studies using the behavioral agency model (Wiseman & Gómez-Mejía, 1998) suggest that family firms focus primarily on minimizing losses of current SEW and are willing to sacrifice future FW by offering a discounted price to avoid such losses (Leitterstorf & Rau, 2014). By contrast, instant endowment in prospect theory suggests that family owners focus on maximizing future FW attainable through selling firm ownership, and accept losing SEW if balanced by commensurate financial gains

(Zellweger et al., 2012). Both the behavioral agency model (with its emphasis on current SEW) and prospect theory (with its emphasis on future FW) offer valuable insights on the interrelatedness of FW and SEW in family firm decision making. However, the two perspectives are based on different assumptions on the reference points used in decision framing, which can critically influence how decision outcomes are evaluated (Kahneman & Tversky, 1979; Wiseman & Gómez-Mejía, 1998). As a result, there is theoretical ambiguity on how family firms alternate the focus between SEW and FW in addressing mixed gamble situations. By recognizing that the IPO process involves the initial listing decision followed by the pricing decision – a two-stage gamble – and that information disclosed during the IPO process (such as initial losses of current SEW and new expectations of future SEW) may lead family owners to adapt their reference point and change their preferences for IPO underpricing, we hope to strengthen the behavioral agency model predictions on how family firms address mixed gambles and reconcile the conflicting findings in prior research.

Behavioral Agency Model, Current SEW and IPO Underpricing

The behavioral agency model extends the agency theoretical analysis of managerial decisions under risk with decision framing and loss aversion (Harris, Johnson, & Souder, 2013; Wiseman & Gómez-Mejía, 1998). In particular, decision framing suggests that people do not evaluate decisions in terms of absolute levels of wealth, but frame decision outcomes in relation to a reference point, with values above the reference point framed as gains and values below the reference point framed as losses (Kahneman & Tversky, 1979). Loss aversion replaces the traditional assumption of agent risk aversion, implying that outcomes are evaluated using an S-shaped value function that favors risk aversion in the gains domain and risk seeking in the loss domain (Kahneman & Tversky, 1979; Tversky, Slovic, & Kahneman, 1990). The behavioral agency model predicts that individuals will forgo the possibility of a future gain when it involves a potential loss in current wealth, and will avoid

losses to current wealth to the point of accepting greater uncertainty or risk (Wiseman & Gómez-Mejía, 1998).

Scholars using the behavioral agency model argue that the loss of SEW is the primary driver of family firms' strategic behavior (e.g., Berrone et al., 2010; Gómez-Mejía et al., 2007), and that SEW considerations are always likely to take precedence in family firms' decision making unless FW is threatened, such as when firm performance falls below aspirations (Chrisman & Patel, 2012; Gómez-Mejía et al., 2014a, 2015). As an IPO is itself an indication of high performance and firm success (Beckman & Burton, 2008; Stuart, Hoang, & Hybels, 1999), this view suggests that loss aversion will always lead family firms to address the IPO pricing decision by seeking to avoid potential losses of their current SEW rather than maximizing their FW (e.g., Brennan & Franks, 1997; Leitterstorf & Rau, 2014; Roosenboom & Schramade, 2006). There are three critical reasons why higher IPO underpricing may reduce potential SEW losses. First, maintaining some control over the firm after IPO is a critical condition for preserving SEW (Chua, Chrisman, & Sharma, 1999; Zellweger et al., 2012). By accepting higher IPO underpricing, family owners sacrifice some of their FW, but increase the likelihood of an oversubscription of the IPO, which increases the possibility of discriminating against large subscribers who would represent a constraint to family control after the IPO (Beatty & Ritter, 1986; Brennan & Franks, 1997; Stoughton & Zechner, 1998). Second, higher IPO underpricing can reduce the likelihood of post-IPO lawsuits and potential litigation costs (Lowry & Shu, 2002), which could cause reputational damage for the family and jeopardize the identity linkages between the family and the firm (Deephouse & Jaskiewicz, 2013; Zellweger, Nason, Nordqvist, & Brush, 2013). Third, pricing IPO shares too high increases the probability of an unsuccessful offer (Ritter & Welch, 2002; Welch, 1992). IPO underpricing may thus help family owners avoid the reputational losses that a failed IPO would entail.

The behavioral agency model suggests that family firms frame any decision involving the possibility of losing SEW in the loss domain (Gómez-Mejía et al., 2007). Such negative framing in turn motivates them to minimize potential SEW losses to the point of sacrificing FW. It follows that loss-averse family firms willingly forgo the potential FW gains of the IPO as a form of insurance to reduce potential losses to their current SEW. According to this view, scholars interpret the amount of FW sacrificed to preserve SEW as an indication of a negative substitution rate between FW and SEW (e.g., Leitterstorf & Rau, 2014).

Prospect Theory, Future FW, and IPO Underpricing

Although the behavioral agency model offers a compelling rationale to expect higher IPO underpricing in family firms, this conclusion is based on the critical assumption that family owners frame the IPO pricing decision using their current level of SEW as the natural reference point. However, gains and losses are not always framed relative to the status quo (Kahneman & Tversky, 1979). Instead, the central notion of instant endowment in prospect theory (Kahneman, Knetsch, & Thaler, 1990, 1991; Thaler & Johnson, 1990) suggests that individuals become immediately attached to an object upon being endowed with it and the attachment disappears immediately when possession is lost (Kahneman et al., 1990; Thaler, 1980; Thaler & Johnson, 1990). Accordingly, studies using laboratory experiments (e.g., Kahneman et al., 1990) and hypothetical surveys (e.g., Franciosi, Kujal, Michelitsch, Smith, & Deng, 1996) show that people immediately incorporate losses in their calculations of current wealth. Therefore, they address pricing decisions using a reference point that is lower than the current level of wealth, increasing the likelihood of framing future outcomes in the gains domain (Kahneman et al., 1990, 1991; Thaler, 1980; Thaler & Johnson, 1990). This framing motivates people to maximize future wealth rather than minimize the loss of current wealth (Kahneman et al., 1991).

By extending the endowment effect to family firms, the SEW associated with family ownership should increase family owners' perceptions of the firm's total value and discourage selling ownership shares at a discounted price (Astrachan & Jaskiewicz, 2008; Zellweger & Dehlen, 2012; Zellweger et al., 2012). Instant endowment suggests that once family owners decide to do an IPO, they will immediately incorporate SEW losses in their calculations of current wealth and frame the IPO pricing decision using a lower reference point than that assumed in the behavioral agency model. Accordingly, when family owners are presented with a hypothetical scenario in which they would sell firm ownership to a family or a non-family member, they demand a significantly higher price from the latter (Zellweger et al., 2012; Zellweger, Richards, Sieger, & Patel, 2016). This evidence suggests that family owners frame the pricing decision in the gains domain and thus try to obtain financial compensation for relinquishing their SEW. In other words, the endowment effect in prospect theory suggests that after having decided to relinquish firm ownership, family owners reduce their focus on current SEW and put greater emphasis on future FW. This view suggests that the FW and SEW substitution rate is positive, as captured by a higher rather than lower price at IPO.

THEORY DEVELOPMENT AND HYPOTHESES

Toward a Two-Stage Gamble Model of IPO Underpricing

The behavioral agency model and prospect theory share the same basic notions of decision framing and loss aversion in explaining family firm IPO pricing decisions. However, these views are based on different assumptions on the reference point through which family owners frame the IPO outcomes, which may explain their divergent predictions on whether family firms base their decisions on minimizing losses of current SEW or maximizing future gains of FW. As a first step toward reconciling these conflicting predictions, we explicate the mixed gamble underlying IPO pricing decisions to provide a more explicit account of the

reference point used in decision framing, thereby clarifying how family owners frame potential gains and losses of FW and SEW at IPO. We illustrate our arguments in Figure 1, tracking the changes in family owner's FW and SEW during the IPO process at three points in time: prior to IPO (T_{-1}), when the IPO decision is made (T_0), and when the IPO is completed (T_1).

Insert Figure 1 about here

Figure 1 illustrates that when family owners make the initial decision to do an IPO, they experience a change in their current wealth, namely, an initial loss of SEW associated with the dilution of family control and influence, and a corresponding increase in FW (Leitterstorf & Rau, 2014). These changes are illustrated by the differences in SEW and FW between T_{-1} and T_0. The IPO pricing decision is then represented as a mixed gamble involving a choice between two different prospects concerning future wealth. The decision to underprice IPO shares (Prospect A) is the risky choice whereby family owners discount the initial shares relative to the highest possible price and thereby sacrifice some of the FW gains attainable through the IPO to increase the probability of recovering some SEW after the IPO. As discussed above, by offering a lower price, family owners can hope to maintain greater control after the IPO, avoid post-IPO litigations, and minimize the possibility of an unsuccessful offer. Therefore, in the eyes of family owners, the prospect of higher IPO underpricing involves accepting a certain loss of future FW in exchange for the uncertain possibility of recovering SEW losses. Rather than formulating a subjective probability of each individual possible outcome, we assume that family owners formulate expectations of whether SEW will increase or decrease, since this requires less cognitive effort (Lee et al., 2008). Thus, the risk associated with the prospect of higher IPO underpricing is represented in Figure 1 as a probability function with probability *p* of losing a lower amount of SEW and a probability *1-p* of losing more SEW. In both probability scenarios, the lower level of FW

relative to T_0 represents the amount of money left on the table by underpricing IPO shares. On the other hand, the decision to offer a higher price for IPO shares (Prospect B) is the riskless choice whereby family owners accept the loss of SEW associated with selling firm ownership for the corresponding increase in FW. In other words, opting for lower IPO underpricing implies integrating the bad news (SEW losses) with the good news (FW gains), such that family owners can feel good about the net outcome (Kahneman & Tversky, 1979).

According to the decision framing and loss aversion mechanisms, the decision between Prospect A and Prospect B depends on whether their respective outcomes are framed in the gains or losses domain, and hence on the reference point used (Kahneman & Tversky, 1979). In the behavioral agency model, future wealth outcomes are framed relative to a "neutral" reference point that is the status quo (Gómez-Mejía et al., 2007; Wiseman & Gómez-Mejía, 1998), or in the context of IPO pricing decisions, the family owners' wealth prior to the IPO (Leitterstorf & Rau, 2014: 753). In Figure 1, this reference point is denoted as the level of SEW at T_{-1}. As the IPO necessarily implies a dilution of family control, family owners using this reference point will frame any outcome of the IPO pricing decision as a loss of SEW relative to their current SEW endowment. By framing the gamble in the loss domain, loss-averse family owners will seek greater risk, preferring Prospect A to Prospect B, and opting for higher IPO underpricing. In contrast, prospect theory predictions are based on the concept of instant endowment (Thaler, 1980), meaning that recent changes in wealth are immediately included in their current wealth calculations (Franciosi et al., 1996; Thaler & Johnson, 1990). Once the decision to part with firm ownership is made, family owners will instantly incorporate the initial loss of SEW in their calculations of current wealth and frame future outcomes using the new level of SEW as the reference point. This reference point, denoted as the level of SEW at T_0 in Figure 1, leads family owners to frame the outcomes of

the IPO pricing decision in the gains domain. They will hence be risk averse and prefer Prospect B to Prospect A, leading to lower IPO underpricing.

In sum, our theoretical examination suggests that the dialectic between the behavioral agency model and prospect theory can be reconciled by viewing their assumptions on decision framing as poles on a continuum rather than as mutually exclusive. Both theoretical perspectives assume that the reference point is static and does not change during the decision process. However, IPO literature acknowledges that the book building process (i.e., the period between the initial IPO announcement and the actual IPO) is a long period of time containing many critical decision points that can substantially influence pre-IPO owners' expectations and preferences (Certo et al., 2009; Jenkinson & Jones, 2004; Loughran & Ritter, 2002; Ritter & Welch, 2002). Thus, we relax the static assumptions in prior research and argue that the reference point through which family owners frame the IPO pricing decision can change during the IPO process, producing systematic differences in their preferences for IPO underpricing.

Two theoretical arguments counter the static reference point assumption in prior research: (1) bounded rationality (Simon, 1991), and (2) information asymmetry (Leland & Pyle, 1977). First, bounded rationality suggests that there are natural limits to the family owners' ability to process information, address complexity, and perfectly anticipate the uncertain consequences of the IPO decision (Certo et al., 2009). Family owners typically have a concentrated ownership position in a single firm (e.g., Anderson & Reeb, 2003) and most often approach an IPO for the first time. Their low experience in dealing with IPOs, in turn, is likely to limit their ability to form realistic expectations of the outcomes of the IPO (Arthurs, Hoskisson, Busenitz, & Johnson, 2008). Second, a central element of the IPO process is the reduction of information asymmetries between current firm owners and potential investors. After the IPO is announced, the IPO firm disseminates a prospectus with

information about its performance and potential growth opportunities, and receives feedback from investors (Leland & Pyle, 1977). As the investor community and the media reveal their opinions about the IPO, and provide up-to-date information on the evaluation of others, they create information cascades (Pollock, Rindova, & Maggitti, 2008) that are likely to influence family owners' initial assumptions and expectations of future IPO outcomes. Moreover, external feedback is likely to gradually change pre-IPO owners' assessment of firm value from an internal perspective derived from their day-to-day involvement and knowledge of the underlying business fundamentals, toward the perspective of the public stock market (Ritter & Welch, 2002). As family owners obtain new information and develop a new sense of firm value, they may revise the terms of the offering, such as the amount of ownership retained (Ljungqvist & Wilhelm, 2005), the timing of the IPO (Jenkinson & Jones, 2004), and the choice of underwriters (Krigman, Shaw, & Womack, 2001). These critical decisions are likely to change the decision context (Wiseman & Gómez-Mejía, 1998) of the IPO pricing decision, suggesting that the reference point used by family owners can indeed change during the IPO process.

To provide a foundation for understanding how family owners adapt their reference point during the IPO process, we use one of the most significant features of Kahneman and Tversky's (1979) prospect theory, namely, aversion to loss realization. Kahneman and Tversky note that decisions are rarely made in temporal isolation and that the presence of initial losses complicates the evaluation of mixed gambles. Aversion to loss realization is explained by mental accounting or how people segregate different gambles into separate accounts (Thaler, 1980). In particular, when an asset is purchased, a new mental account is opened and subsequent decisions are framed using the purchasing price as the natural reference point. Aversion to loss realization arises because people encounter considerable difficulties in closing mental accounts at a loss and prefer to transfer depreciated assets to a

new account even if this entails embracing higher risk (Thaler & Johnson, 1990). Accordingly, studies in behavioral economics show that investors tend to hold underperforming assets to avoid realizing "paper" losses (e.g., Odean, 1998; Shefrin & Statmam, 1985).[2]

We argue that loss realization is inherently related to the way family owners mentally account for the initial SEW losses associated with the listing decision in the subsequent IPO pricing decision. If family owners fully adapt their reference point by closing their old mental account with the losses of SEW associated with the IPO decision, they will evaluate future prospects relative to a lower amount of SEW (T_0 in Figure 1). Contrary to the behavioral agency model prediction, in this situation, the likelihood of SEW taking priority over FW considerations decreases even if the firm does not face an economic threat, leading to lower IPO underpricing. However, if family owners do not fully adapt to the initial loss of SEW, they will include the initial losses of SEW in the mental account associated with the IPO pricing decision and use the initial amount of SEW as the reference point (T_{-1} in Figure 1). In this situation, loss aversion is likely to increase family owners' emphasis on preserving SEW rather than increasing FW, leading to higher IPO underpricing.

According to Kahneman and Tversky (1979), reference point adaptation depends on past and present stimuli. In particular, prior research on investment behaviors suggests that aversion to loss realization is more pronounced when people experience larger losses (e.g., Thaler & Johnson, 1990), or when they hold positive expectations of future outcomes (e.g., Lee et al., 2008). Thus, unlike prior research, we examine the possibility that family owners engage in reference point adaptation during the IPO process, leading to changing perceptions of current and future wealth. Accordingly, we develop hypotheses predicting how

[2] This view is also consistent with psychology literature on escalation of commitment, which shows that people tend to intensify their commitment to a course of action after experiencing a loss (e.g., Staw, 1976).

dynamically changing frames of reference, depending on the size of initial SEW loss and expectations of future SEW outcomes, affect their IPO underpricing decision.

Initial SEW Losses and IPO Underpricing

If the outcomes of initial decisions influence the reference point used to frame current decisions, the signs and magnitudes of initial outcomes can yield important insights on reference point adaptation in two-stage gamble situations (Kahneman & Tversky, 1979; Thaler & Johnson, 1990). Research suggests that larger initial losses are more likely to create a discrepancy between perceived wealth and the current wealth position (Arkes and Blumer 1985; Lee et al., 2008; Thaler, 1980). It follows that family owners will tend to be more averse to loss realization and more prone to the disposition effect when they perceive a larger initial loss of current SEW associated with the IPO decision. Building on prior work (e.g., Cannella, Jones, & Withers, 2015; Miller et al., 2013), we theorize that family owners perceive a greater or lesser loss of SEW depending on the type of family involvement in the firm at the time of the IPO, specifically (1) the number of family members involved in ownership and/or management, and (2) the generation of family leadership.

First, scholars differentiate family firms involving family members in firm ownership and/or management from lone-founder firms where no other family members are involved, arguing that family firms have stronger preferences for maintaining family control in the future than lone-founder firms (Cannella et al., 2015; Miller & Le Breton-Miller, 2014; Miller, Le Breton-Miller, & Lester, 2011). As lone-founder firms do not include other family members, they are not emotionally constrained by family ties and are much less concerned about passing control to the next generation. They tend to embrace an entrepreneurial identity and see themselves as business builders rather than family patriarchs (Miller et al., 2011). As they are primarily concerned with procuring critical resources to ensure firm growth rather than preserving the family dynasty, they are likely to perceive lower SEW losses at IPO.

Conversely, as family firms employ multiple family members in the firm, they are more likely to be concerned with preserving the ability to act altruistically toward family members and protect them from potential employment and compensation risks (Gómez-Mejía et al., 2001, 2003). Moreover, they tend to emphasize continued family control through dynastic succession as a means of ensuring employment, prestige, and social status to family members involved in the firm (Chua et al., 1999). Therefore, family firms are more likely than lone-fonder firms to be concerned with passing control to the next generation. Due to their heightened emphasis on protecting family managers' welfare (Cruz et al., 2010) and perpetuating the family values and dynasty (Berrone et al., 2012), family firms involving family members in ownership and/or management are more likely to perceive a greater loss of SEW at IPO.

For these reasons, we argue that family firms will show greater aversion to realizing initial SEW losses at IPO than lone-founder or non-family firms. Given our previous theoretical argument that greater aversion to loss realization leads to slower reference point adaptation and more negative decision framing, we propose that family firms have a greater disposition toward underpricing IPO shares than lone-founder or non-family firms.

Hypothesis 1. Family firms have higher IPO underpricing than lone-founder and non-family firms.

If people adapt to changes in ownership gradually, we can also expect that family owners' perception of initial SEW losses depends on the duration of ownership (Strahilevitz & Loewenstein, 1998). Relatedly, family firm emphasis on SEW is likely to change across generations of family leadership with significant differences between founding generation family firms, where the founder is still the CEO, and later generation family firms with a non-founding family member CEO (e.g., Le Breton-Miller & Miller, 2008; Miller et al., 2011, 2013). We focus on this distinction to develop our second hypothesis concerning the impact of initial SEW losses on family firm disposition toward IPO underpricing.

There are important differences in the goals pursued by founding and later generation family CEOs that should to be reflected in how they perceive initial SEW losses at IPO and, thus, in their preferences about IPO underpricing. Family firms in the founding generation still embody a stronger entrepreneurial identity and the founder typically holds the dominant share of ownership, implying a greater ability to resolve potential conflicts between business and family priorities (Miller et al., 2011). The main SEW priority for family founders is ensuring that the business survives and grows before it is eventually passed on to later generations. Therefore, the emphasis on preserving family control and power is likely to be superposed by their strong growth aspirations. Moreover, as founder family CEOs have made a critical contribution to creating the firm and leading its growth up to the point of doing an IPO, their competence and expertise is unlikely to be questioned by outside investors (Miller et al., 2013; Volpin, 2002). They are thus less likely to be concerned about the compensation and employment risks associated with the IPO. In sum, founding family CEOs have a greater emotional attachment to the firm than the leaders of lone-founder and non-family firms, which adds to their perceptions of the firm's total value. Yet, as they perceive lower initial losses of SEW at IPO, they are more likely to accept such losses and adapt their reference point more promptly, leading them to use a lower reference point for the IPO pricing decision. The resulting positive framing of the IPO pricing decision creates a strong incentive for founder family CEOs to ask a higher price for IPO shares to reflect the financial value of the firm and compensate relinquishing their SEW. It follows that maximizing future FW gains is likely to take priority over minimizing losses of current SEW through IPO underpricing. Therefore, we expect that the combination of high levels of current SEW and low perceptions of SEW losses at IPO will lead founding generation family firms to choose lower IPO underpricing compared to not only other family firms, but also lone-founder and non-family firms.

As family firms are handed over to later generations, they are progressively imbued with family-specific attributes through the gradual involvement of later-generation family members in leadership positions. Over the family firm's lifecycle, family member perceptions of belonging increase, gradually accumulating socioemotional benefits from familial altruism (Berrone et al., 2012; Zellweger & Astrachan, 2008). In addition, continued interactions between the family and business systems over time enhance family members' identification with the family firm (Deephouse & Jaskiewicz, 2013). Thus, the founder CEO's strong desire for growth is likely to be superposed by the desire of later generation family members to protect their accrued SEW through maintaining control over the firm (Duran, Kammerlander, van Essen & Zellweger, 2015; Miller et al., 2011), and protect the family members' welfare (Cruz et al., 2010). Therefore, the loss of SEW associated with selling ownership shares at IPO will be more strongly perceived in later generation family firms. The higher perception of initial SEW losses is likely to impede reference point adaptation and increase the salience of current SEW compared to future FW in family owners' decision making, leading to a greater disposition toward underpricing IPO shares for later generation family firms compared to other firms.

Hypothesis 2a. Family firms with a founder family CEO have lower IPO underpricing than lone-founder and non-family firms.

Hypothesis 2b. Family firms with a later generation family CEO have higher IPO underpricing than lone-founder and non-family firms.

Future SEW Expectations and IPO Underpricing

In investment decisions, aversion to loss realization is driven by investors' beliefs that underperforming stocks will bounce back (Shefrin & Statman, 1985), suggesting that expectations of future wealth outcomes are critical to reference point adaptation (Lee et al., 2008). In particular, research suggests that positive expectations of underperforming stocks rebounding will strengthen aversion to loss realization and slower reference point adaptation

(Thaler & Johnson, 1990). In contrast, investors with negative expectations have a greater disposition toward liquidating losing positions (e.g., Arkes et al., 2008; Köszegi & Rabin, 2006). Thus, we infer that the information gathered during the IPO process as family owners make crucial decisions on ownership retention, timing of the IPO, and choice of underwriters (Loughran & Ritter, 2002; Ritter & Welch, 2002) will lead family owners to change their expectations of future SEW outcomes, altering the decision context for family owners, and resulting in different framings and preferences for IPO underpricing in family firms.

First, during the book building process, family owners negotiate the amount of shares they will retain after the IPO relative to the amount of shares that will be sold (e.g., Ljungqvist & Wilhelm, 2005). The family owners' decision on degree of ownership retention has important consequences on their ability to enjoy continued family control and influence after the IPO (Barry, 1989; Ljungqvist & Wilhelm, 2003; Rouse, 2016), hence it can critically influence their expectations of future SEW outcomes. As continued family control after the IPO is a necessary condition to preserve SEW (Zellweger et al., 2012), family owners will expect lower SEW losses after IPO if they retain higher ownership. In this case, the IPO will consist of newly issued shares rather than family owners' existing shares. The potential losses of SEW will be mostly associated with dilution effects (Barry, 1989), and thus relatively low. By retaining higher ownership, family owners will be less vulnerable to hostile takeovers and the market for corporate control (Morck, Shleifer, & Vishny, 1988). Moreover, family members will be more protected from employment and compensation risks (Gómez-Mejía et al., 2001, 2003). Therefore, they obtain lower FW through the IPO but can expect to have lower constraints in pursuing their non-financial goals after the IPO (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999). Conversely, if family owners sell greater portions of ownership, they are likely to have more negative SEW expectations due to the higher risk of losing further SEW after the IPO (e.g., Rouse, 2016).

Because positive expectations make reference point adaptation slower (Lee et al., 2008), we argue that family owners will show a stronger aversion to loss realization when ownership retention is high. They are therefore more likely to use a higher level of SEW as the reference point and frame the outcomes of the IPO pricing decision in the loss domain (Tversky & Kahneman, 1991), leading to higher IPO underpricing. Vice versa, family owners who retain a lower ownership share will have more negative expectations of future SEW and will more quickly incorporate the initial loss of SEW in their perceptions of current wealth. The reference point for the IPO pricing decision will thus be lower, implying more positive framing and a lower disposition toward underpricing. Therefore, countering the behavioral agency prediction that SEW always takes priority in family firms' decision making, we posit that family firms alternate their focus between SEW and FW depending on the degree of ownership retention at IPO, leading to divergent preferences for IPO underpricing.

> *Hypothesis 3: The relationship between family firm status and IPO underpricing is positively moderated by the degree of family ownership retained, such that family firm disposition toward IPO underpricing is higher when family owners retain a higher amount of ownership.*

Family owners' expectations of future SEW outcomes are also likely to change depending information that emerges during the book building process as pre-IPO owners decide the timing of the IPO (Jenkinson & Jones, 2004). IPO markets are characterized by alternating periods of significant activity (hot periods) and low activity (cold periods). Finance literature shows that hot markets are associated with higher trading volumes and higher levels of underpricing than cold markets (Ritter, 1984). When there is rising activity in the IPO market, there will be an increase in the expected underpricing of all IPOs in the selling period, hence underpricing may not be sufficient for family firms to discriminate against large subscribers. Further, market investors tend to believe that firms that go public during hot markets do so for "windows of opportunity" reasons (Loughran & Ritter, 2002,

2004). They tend to be over-optimistic and more prone to demanding shares in the aftermarket (Lee, Shleifer, & Thaler, 1991; Lowry, 2003; Lowry & Schwert, 2002). This in turn increases the possibility for family owners to obtain greater FW after the IPO, but also entails a greater probability of further diluting family control after IPO. Hot IPO markets are also associated with higher merger and acquisition activity (Brennan & Franks, 1997). This in turn increases the threat of hostile takeovers from outside investors concerned that family owners pursue sub-optimal strategies to preserve their SEW (Gómez-Mejía et al., 2010; Miller et al., 2011), misuse the firm and its resources to provide social and emotional benefits to the family in the form of careers, image, and reputation (Berrone et al., 2010), or exploit their control and information advantages to pursue private gains and expropriate minority shareholders (Anderson, Mansi, & Reeb, 2003; La Porta et al., 1999). Finally, research shows that hot IPO markets are associated with a higher number of delistings (Yung, Çolak & Wang, 2008), which increases the likelihood of post-IPO lawsuits or the probability of an unsuccessful offer involving major SEW losses for family owners.

Thus, the IPO market momentum can provide crucial insights on family owners' future SEW expectations. As family owners develop more negative expectations of their future SEW in hot IPO markets, they will incorporate initial SEW losses in the mental account used for the IPO pricing decision and adapt their reference point more quickly. At the same time, hot IPO markets are likely to create more positive expectations of future FW attainable through the IPO. Family owners will therefore more likely frame the decision in the gains domain, such that their focus on current SEW will decrease and future FW considerations will take priority, leading to lower IPO underpricing.

Hypothesis 4. The relationship between family firm status and IPO underpricing is negatively moderated by market momentum, such that family firm disposition toward IPO underpricing is lower in hot IPO markets.

Finally, family owners' expectations of future SEW outcomes are influenced by the reputation of the financial intermediary (underwriter) involved in the book building process. Pre-IPO owners hire underwriters to help them value and market the firm's shares to potential investors. By performing due-diligence, they can certify issuer quality (Titman & Trueman, 1986) and increase the likelihood of issue oversubscription (Benveniste & Spindt, 1989; Sherman & Titman, 2002), thereby helping family owners maintain control by preferentially allocating shares to smaller investors. However, research also suggests that underwriters may not always act in the best interests of family owners, as they may also want to create relationships with loyal institutional investors for future new issues (Pollock, Porac, & Wade, 2004). This creates a dual agency problem (Arthurs et al., 2008) whereby the reputation of the underwriter can crucially influence family owners' future SEW expectations, and therefore their preferences for IPO underpricing.

IPO literature suggests that underwriter reputation is defined and reinforced over time by the members of the financial community (e.g., Beatty & Ritter, 1986; Carter & Manaster, 1990). As it takes time to build a reputation, underwriters with a high reputation are more likely to be committed to accomplishing the goals of the family owners who hired them, and less likely to risk jeopardizing their reputation by accommodating the will of market investors (Beatty & Ritter, 1986). Thus, if high-reputation underwriters are involved, family owners are more likely to deem their interests will be safeguarded during the IPO, so that future SEW losses will be lower (Carter & Manaster, 1990). On the other hand, lower-reputation underwriters have greater incentives to create relationships in the IPO market and please their investors to encourage future IPO investments (Fischer & Pollock, 2004; Pollock et al., 2004). It follows that family owners will form more positive expectations of their future SEW when the IPO is managed by a high-reputation underwriter, but will have more negative expectations when dealing with underwriters who have not yet developed a strong reputation

in the market. By prompting positive expectations, the underwriter's reputation will lead to slower reference point adaption, such that family owners will be more likely to frame future outcomes as losses relative to their initial level of SEW. This negative framing will in turn increase the salience of current SEW compared to future FW, encouraging family owners to offer higher IPO underpricing.

Hypothesis 5. The relationship between family firm status and IPO underpricing is positively moderated by underwriter reputation, such that family firm disposition toward IPO underpricing is higher when they choose high-reputation underwriters.

METHODS

To test our hypotheses, we constructed a unique sample of 1,807 IPOs that took place in seven European countries (Belgium, France, Germany, Italy, the Netherlands, Portugal, and the UK) from 1995 to 2011, the latest year for which this data was available. The EurIPO database containing data and prospectuses of the population of IPOs in all major European stock exchanges (e.g., Bonardo et al., 2011; Chambers & Dimson, 2009; Judge et al., 2015) constituted our main source of information. Consistent with IPO literature (e.g., Loughran & Ritter, 1995), we did not consider offerings by investment entities (e.g., Real Estate Investment Trusts), introductions (i.e., direct listings with no share offers), re-admissions, market transfers, and cross-listings. The data were codified from each firm's official IPO prospectus, filed with the regulatory authority providing detailed information on the issuing firm (e.g., year and country of incorporation, business description, financials) and the securities offered (e.g., amount of shares offered, selling shareholders, offer price). We cross-checked and integrated data on the first day closing price (to calculate IPO underpricing) and the ownership structure (to accurately identify a firm's ultimate owner) from the Datastream and Orbis databases respectively.

Focusing on IPO firms could lead to potential selection bias as this only allows analyzing the IPO pricing decisions of firms that have conducted an IPO. For example,

family firms that have decided to go public may have already accepted incurring a loss of SEW and only focus on future FW in addressing the IPO pricing decision[3]. Therefore, consistent with the two-stage IPO underpricing model presented above, we disentangled the initial listing decision from the subsequent IPO pricing decision taking into consideration unobservable factors that simultaneously affect both the probability of a private firm self-selecting its treatment (the decision to do the IPO) and the treatment outcome (IPO underpricing). Prior studies show that entrepreneurs taking the firm to IPO sell some of their equity to satisfy their respective liquidity and capital demands, but continue to manage the firm after the IPO, whereas entrepreneurs who sell their firm to a private acquirer also give up control of the firm (Bayar & Chemmanur, 2012; Poulsen & Stegemoller, 2008). Accordingly, we used a two-step Heckman selection model (Heckman, 1979) predicting whether a firm went to IPO as opposed to selling firm ownership to an external buyer. We obtained data from the Thomson Financial SDC Mergers and Acquisition database on the population of private firms acquired by external buyers. We defined the sample to reflect the same European countries and the same time window as our sample of IPOs. We integrated accounting data from the Amadeus database to obtain a sample of 5,508 European private firms acquired during 1995-2011.

Following previous studies addressing selection issues in a private firm's choice between IPO and acquisition (e.g., Bayar & Chemmanur, 2012), we modeled in the first stage the likelihood of doing an IPO vs. selling to an acquirer by means of a probit regression, using firm characteristics as independent variables. This allowed determining the inverse Mills ratios that capture unobservable information. As the Heckman model requires an instrument to avoid identification being driven by the non-linearity of the first step, we included M&A intensity among the first stage regressors. This variable is defined as the

[3] We are grateful to an anonymous reviewer for bringing this point to our attention.

number of M&A deals involving a European target completed in the same year and industry (2-digit SIC level) as the firm going to IPO vs. acquisition choice, divided by the total number of deals completed in the same industry over the entire sample period (Signori & Vismara, 2017). For the instrument to be valid, it must strongly affect the likelihood of going public, while not affecting IPO underpricing through any channel other than the decision to go public. We expect that a private firm's decision between going public and being acquired is affected by the current M&A dynamics in its industry (Gao, Ritter, & Zhu, 2013), while we have no reason to believe that such dynamics influence the level of underpricing.

In the second stage, we regressed IPO underpricing on the subsample of firms that did not go public and included the inverse Mills ratio obtained in the first stage among the independent variables. To correct for possible unobserved heterogeneity at the cross-sectional level, we computed heteroscedasticity-corrected clustered robust standard errors. We also incorporated additive controls designed to capture the fixed effects of unobserved industry, year, and country-specific factors.

Measures

Dependent variable. Our dependent variable is *IPO underpricing*, defined as the official closing price on the first day of trading minus the offer price, divided by the offer price (e.g., Beatty & Ritter, 1986).

Family firm measures. To test our first two hypotheses, we used the following family firm measures as a proxy for the size of initial SEW losses at IPO. First, Hypothesis 1 suggests that family firms' greater perceptions of initial loss of SEW at IPO create greater disposition toward IPO underpricing than lone-founder or non-family firms. Thus, we distinguish family, lone-founder and non-family firms following Cannella et al. (2015). As identifying the controlling entity is often difficult in European firms, we gathered information from official IPO prospectuses and company websites to reconstruct the ownership and

control chains of all IPO firms. We then examined the list of all shareholders with 5% or more shares in search of owners, officers, or directors with the same surname as the company's founder or founding family. We categorized firms as *family firms* if 20% or more control rights were held by family members and if at least two family members were involved in the firm. While some U.S. studies identify family firms by setting a lower threshold of controlling ownership, we adopted the same threshold as Faccio and Lang (2002) in their European study, since European firms are characterized by a relatively higher level of ownership concentration (La Porta et al., 1999). Furthermore, a threshold based on control rights (as opposed to cash-flow rights) allows taking into account the effects of possible control-enhancing mechanisms. *Lone-founder* firms were coded as such when 20% or more control rights were held by the founder and no other person related to the founder was a significant shareholder, director, or officer. Second, Hypotheses 2a and 2b suggest that the size of initial SEW losses at IPO varies across generations of family leadership, leading to divergent dispositions toward IPO underpricing. Thus, we follow prior studies (e.g., Duran et al., 2015) in classifying family firms into two groups: *founding generation family firms* (family firms with a founder family CEO) and *later generation family firms* (family firms with a later generation family CEO).

The use of family ownership and management as proxies of SEW is a common approach in family business research due to the difficulty of directly measuring SEW (e.g., Chrisman & Patel, 2012; Gómez-Mejía et al., 2014a, 2015; Zellweger et al., 2012). Although measures of SEW have recently been developed (Berrone et al., 2012; Debicki, Kellermanns, Chrisman, Pearson, & Spencer, 2016), it is practically impossible to implement these measures retrospectively at the time of IPO. These limitations notwithstanding, prior research suggests that family control is an essential component of SEW (Zellweger et al., 2012) and the correlation between the family firm measures used in this study and the SEW dimensions

is extremely high (Gómez-Mejía, Chirico, Nordqvist, & Hellerstedt, 2014b). Because of their direct connection to the importance of SEW, the face validity of our measures is also relatively high. However, recognizing the potential limitations with the proxy measures, we conduct several additional analyses to ensure the robustness of our study's theoretical premises on the role of SEW as a driver of IPO underpricing in family firms.

Moderation variables. Three moderation variables were used to test our hypotheses concerning the impact of family owners' future SEW expectations on IPO underpricing. First, *ownership retention* is the ratio of retained shares to the amount of post-IPO shares outstanding (Leland & Pyle, 1977). The degree of ownership retention captures the extent to which family owners will enjoy continued control and influence after the IPO (Barry, 1989; Ljungqvist & Wilhelm, 2003; Vismara, 2016). By reducing the risk of losing further SEW after the IPO (Rouse, 2016), high ownership retention should create more positive expectations of future SEW outcomes and, according to Hypothesis 3, lead to higher IPO underpricing in family firms.

Second, we define *IPO momentum* as the median change from the midpoint of the initial filing range to the final offer price for all IPOs issued in the prior month (Krigman, Shaw, & Womack, 1999). This variable distinguishes the effect of hot versus cold IPO markets by capturing pre-issue excess demand, which indicates higher levels of investor enthusiasm and greater merger and acquisitions activity (Brennan & Franks, 1997; Derrien, 2005; Ljungqvist & Wilhelm, 2003; Ritter, 1984). According to Hypothesis 4, we expect family owners to have more negative expectations of future SEW when market momentum is high, leading to lower IPO underpricing.

Third, we measured *underwriter (UW) reputation* as the market share of the lead underwriter in terms of capital raised by the same underwriter in European IPOs during our sample period (Carter & Manaster, 1990; Migliorati & Vismara, 2014). According to

Hypothesis 5, we expect higher UW reputation to create more positive expectations of future SEW outcomes, leading to higher IPO underpricing in family firms.

Control variables. We included a number of control variables common in prior studies on IPO underpricing (e.g., Butler, O'Connor Keefe, & Kieschnick, 2014). Firm attributes, such as size and age, are important in any uncertainty- or information asymmetry-related explanation of IPO underpricing. We define *firm size* as the natural logarithm of sales for the last fiscal year before the IPO. We also included *firm age*, defined as the natural logarithm of one plus the difference between IPO year and the firm's founding year as a proxy for the difficulty of valuing a firm at IPO (Ritter, 1984). Finally, *leverage* is defined as the ratio of pre-IPO total debt to total assets. While more indebted firms may be have a higher likelihood of financial distress, the presence of credit relationships may instead reduce uncertainty, and consequently the required level of underpricing (James & Wier, 1990).

RESULTS

Table 1 presents the country distribution of our sample of IPOs, distinguishing between family and non-family firms. The two groups are then divided into founding vs. later generation family firms, and into lone-founder vs. other firms. Family firms account for 439 out of 1,807 IPOs (24.3%). Of the family firms included in our sample, 73.1% are led by the founding generation, confirming that most IPOs are conducted at a relatively early stage of the firm's lifecycle. Non-family firms account for 1,368 IPOs (75.7%) of which 42.6% are lone-founder firms. These figures are in line with previous evidence on founder ownership of IPOs in Europe (Bruton, Filatotchev, Chahine, & Wright, 2010).

Insert Table 1 about here

Table 2 reports the descriptive statistics of family, non-family, lone-founder, and founding generation family firm IPOs, together with the full sample statistics. Overall, the average level of underpricing is 15.6%, in line with prior European studies covering similar

periods (e.g., Vismara, Paleari, & Ritter, 2012). Family firm IPOs are slightly more underpriced than the sample average (15.9%), albeit not differing statistically from non-family firms. Some differences stand out in terms of size and age, as family firms are on average smaller in terms of firm sales (122 €m), but older (17.4 years) than non-family and lone-founder firms. As expected, family firms led by the founding generation are significantly smaller and younger than those led by later generations. As for ownership retention, the average portion of shares retained by existing shareholders amounts to 71.1% of outstanding shares after IPO. In particular, owners of lone-founder firms tend to retain a larger portion than family owners (72.8% vs. 70.8%, significant at $p < .05$). On average, family firm IPOs occur more often in less favorable market periods than non-family firm IPOs (0.72 vs. 1.49 prior market return, $p < .10$), and are managed by more reputable underwriters compared to lone-founder firms (1.57 vs. 1.26 market share, $p < .01$). These descriptive statistics are overall in line with the assumptions underlying our theory. Table 3 reports the correlation coefficients among all the variables used in this study. We computed the variance inflation factors (VIFs) and found that none approached the commonly accepted threshold of 3, except the full model specification where the simultaneous inclusion of all interaction terms raised the average VIF to 3.8. Thus, multicollinearity should not affect our results.

Insert Table 2 and Table 3 about here

Table 4 presents the results of the Heckman two-step model on IPO underpricing. Model 1 reports the results of the first step estimation modeling a private firm's likelihood of going public vs. being acquired. Models 2 to 7 report the results of the second step, aimed at testing our hypotheses on underpricing while correcting for the selection bias of firms doing an IPO in the first place. The results of the first-step estimation in Model 1 show that larger and younger firms are associated with a significantly higher likelihood of choosing IPO. This

is consistent with studies on the IPO vs. acquisition decision, according to which larger firms with greater growth opportunities (as proxied by age) are more likely to go public (e.g., Bayar and Chemmanur, 2012). As expected, the coefficient of the M&A intensity variable included as an instrument for the IPO decision is negative and strongly significant ($p < .001$).

Insert Table 4 about here

Model 2 shows that neither the lone-founder nor the family firm statuses are *per se* a significant driver of a firm's level of IPO underpricing. The insignificant coefficients of the two variables indicate that the level of IPO underpricing of both lone-founder and family firms is on average no different to that of other non-family firms. Therefore, Hypothesis 1 is not supported.

Hypothesis 2a predicts that founding generation family firms have lower IPO underpricing than lone-founder and non-family firms, while Hypothesis 2b predicts that family firms in later generations have higher IPO underpricing than lone-founder and non-family firms. Consistent with our hypotheses, the coefficients of the first and later generation dummies in Model 3 are negative and positive, respectively. The magnitude of the coefficients shows a relevant economic impact, as founding generation family firms are associated with 10% lower underpricing (although only marginally significant at $p < .10$), while those in later generations are associated with an average 18% higher underpricing ($p < .05$). Thus, we find overall support for Hypotheses 2a and 2b.

Hypothesis 3 predicts that the relationship between family firm status and IPO underpricing is moderated by ownership retention. Consistent with our hypothesis, the coefficient of the interaction term between the family firm and ownership retention variables in Model 4 is positive and significant ($p < .01$). The coefficient of the ownership retention variable shows that underpricing generally decreases with ownership retention (-0.49), while the coefficient of its interaction with the family firm dummy is positive (0.88). The economic

impact is relevant, since a one standard deviation increase in ownership retention results in an average decrease in underpricing of 6.9% among non-family firms, but a 5.5% increase among family firms.[4] Moreover, the average underpricing of family firm IPOs for high levels of ownership retention (i.e., above the sample median) is higher than that of non-family firms (19.4% vs. 14.3%), while the opposite occurs for low levels of ownership retention (12.6% vs. 16.7%). Overall, this provides strong support for Hypothesis 3.

Hypothesis 4 predicts that IPO underpricing increases less in family firms than in non-family firms as market momentum gathers. Consistently, in Model 5 the coefficient of the interaction term between family firm status and IPO momentum is negative and significant ($p < .001$). The unreported tests on the magnitude of the coefficients suggest that more favorable momentum generally increases underpricing (3.70), but at a lower rate among family firms (3.70-2.21=1.49, $p < .001$). The economic impact is again sizeable, with a one standard deviation increase in momentum leading to an average 29.5% increase in underpricing among non-family firms compared to 11.9% among family firms. Thus, Hypothesis 4 is supported.

Hypothesis 5 predicts that IPO underpricing decreases less in family firms than in non-family firms as underwriter reputation increases. Consistent with our hypothesis, the coefficient of the interaction term between family firm status and underwriter reputation in Model 6 is positive and significant ($p < .05$). In particular, IPO underpricing of non-family firms is found to decrease with underwriter reputation (-0.04). A one standard deviation increase in underwriter reputation implies an average decrease in underpricing of 6.9% in non-family firms. However, consistent with Hypothesis 5, this is not the case for family

[4] Holding all other variables constant, we computed the economic impact by multiplying the coefficient of the ownership retention variable with its standard deviation (-0.49*0.14 = -6.9%). For family firms, we added the economic impact associated with the interaction term (-0.49*0.14 + 0.88*0.14 = 5.4%).

firms, as the sum of the two coefficients (-0.04+0.06=0.02) is not statistically different from zero.

Last, in Model 7, we test our hypotheses simultaneously, finding that the evidence obtained in the previous models is robust to the inclusion of all our explanatory variables and the respective interaction terms. This provides further support for our hypotheses concerning the effect of family owner expectations of future SEW outcomes on their preferences for IPO underpricing.

Post-hoc Analyses and Robustness Tests

Cross-country analysis. Although we controlled for country fixed effects in our main analysis, the empirical setting of our study encompassing seven European countries offers the opportunity to explore in greater depth the role of the cultural and institutional context in influencing family firm decision making (Gómez-Mejía et al., 2014a, 2015). For example, prior research shows that family owners in the UK are more willing to sell and cut ties with their firms than family owners in continental Europe (e.g., Wright, Renneboog, Simons, & Scholes, 2006). Thus, family firms in the UK may place less emphasis on preserving SEW at IPO than those in continental Europe. The descriptive statistics of our sample are overall coherent with this view as the UK market is characterized by the highest proportion of IPOs by later generation family firms. Moreover, the unreported descriptive statistics show that in France and Germany, family firms are more reluctant to go to IPO than non-family firms, as evident in their significantly greater age, size and leverage at IPO, whereas these differences appear to be less important in the UK.

Table 5 reports separate analyses of IPOs listed in the three major markets covered by our study (namely, France, Germany, and the UK). Consistent with the main results, Hypothesis 1 predicting a greater disposition toward IPO underpricing in family firms compared to lone-founder and non-family firms is not supported in France (Model 2) and the

UK (Model 10). However, Model 6 in Table 5 shows that the coefficient of the family firm variable is positive and significant for IPOs in Germany ($p < .05$). Moreover, Hypotheses 2a and 2b predicting differences in IPO underpricing between founding and later generation family firms are fully supported in France (Model 3), partially supported in Germany (Model 7), but not supported in the UK (Model 11). Hypothesis 3 concerning the impact of positive expectations of future SEW associated with ownership retention on family owners' disposition toward underpricing IPO shares is marginally supported in France ($p < 0.10$) and strongly significant in Germany ($p < .001$), but not significant in the UK. Conversely, Hypotheses 4 and 5 are more strongly supported in the UK (Model 12) compared to France (Model 4) and Germany (Model 8). In sum, the cross-country analysis overall confirms our main analyses but also points to differences between the UK and continental Europe, suggesting interesting avenues for future research.

Insert Table 5 about here

Loss aversion and IPO underpricing in family firms. The behavioral agency model suggests that loss-averse family firms reduce their focus on SEW when they perceive a threat to FW and firm survival (Chrisman & Patel, 2012). However, because firms approaching an IPO are likely to have a history of high performance, we argue that changes in the firm's situation during the decision process are likely to have a greater influence on decisions concerning IPO underpricing than the firm's performance history. To provide further support for the validity of our theoretical argument, we test whether performance below aspirations influences family firms' disposition toward IPO underpricing. Following prior research (Chrisman & Patel, 2012; Patel & Chrisman, 2014), we measure performance-aspirations gaps as the absolute difference between firm ROA and median firm ROA in the industry at the time of IPO if the difference is negative, otherwise coded zero. The unreported results show that performance-aspiration gaps do not significantly interact with any of our family

firm variables in influencing IPO underpricing. These results are consistent with our theorizing and highlight the importance of aversion to loss realization to understand how family firms alternate focus on SEW vs. FW at IPO.

Robustness of theoretical assumptions. Due to our inability to directly measure SEW, we conducted several additional analyses to test the robustness of our main theoretical assumption on the role of SEW as a main driver of family firms' preferences for IPO underpricing.[5]

First, because larger family firms have lower resource constraints and can provide greater social welfare for the family compared to smaller family firms where wages are the primary source of benefit for family members, we expect that SEW considerations will carry greater relative weight in larger family firms. Accordingly, the interquartile regressions based on firm size suggest that the hypothesized relationships are more strongly supported as firm size increases. Second, prior research suggests that emotional attachment, identification with the firm and dynastic motivations initially increase with firm age (Zellweger et al., 2012), but then diminish as a family firm ages further due to the increasing involvement of non-family managers and the dispersion of family ownership (Gómez-Mejía et al., 2011; Schulze, Lubatkin, & Dino, 2003), suggesting a curvilinear relationship between firm age and the importance of SEW in family firms (e.g., De Massis, Chirico, Kotlar, & Naldi, 2014). Accordingly, the interquartile regressions based on firm age show that our proposed hypotheses are more strongly supported at moderate levels of firm age compared to extremely low or high levels. Third, family firms operating in industries characterized by greater investments in technology and R&D are likely to place greater emphasis on SEW compared to more traditional or mature industries (e.g., Gómez-Mejía et al., 2014a). Splitting the sample according to the firms' technological intensity (R&D expenditure/value added) we

[5] Available from the authors upon request.

find that the aggregate evidence persists in both high-tech and low-tech firms, but is stronger in low-tech industries. Finally, we tested our hypotheses using an alternative definition of family firms based on the 10% control threshold typically used in North-American studies (e.g., Chrisman & Patel, 2012; Gómez-Mejía et al., 2010). The results are essentially the same, providing further support for the robustness of our main results. Overall, these results provide support for our fundamental theoretical assumption that SEW is a primary driver of family firms' decisions concerning IPO underpricing.

DISCUSSION

The strategic behavior of family firms has been the focus of a large and growing body of research. Strategic decisions in family firms are complicated by the simultaneous consideration of two utility dimensions, FW and SEW, which often conflict (e.g., Gómez-Mejía et al., 2011). Unfortunately, existing research is ambiguous as to how family firms trade-off gains and losses along the two dimensions of wealth. Paradoxically, the confusion is greatest in the context of business valuations at IPO, where the substitution between SEW and FW should be most visible. Recognizing that an IPO is a two-stage gamble situation for family firms, we develop and test a dynamic application of the behavioral agency model that uses the aversion to loss realization logic to provide a nuanced explanation of how family firms address trade-offs between SEW and FW. Our study of European IPOs support our prediction that family owners' framings and preferences for IPO underpricing change during the IPO process, depending on initial SEW losses and future SEW expectations. First, our study shows that family firms involving family members do not have significantly higher IPO underpricing than lone-founder firms or non-family firms. However, as the amount of SEW lost at IPO increases with the generation of family leadership, we find that family firms led by a founder family CEO have the lowest level of IPO underpricing, whereas IPO underpricing is highest in later generation family firms. Second, we theorize that aversion to

realizing initial SEW losses depends on new information gathered during the IPO process, which may lead family owners to develop more negative or positive expectations of future SEW outcomes after IPO. Accordingly, we find that more positive expectations of future SEW associated with the choice of higher ownership retention and more reputable underwriters increase family firm disposition toward IPO underpricing. In contrast, negative SEW expectations associated with timing the IPO in "hot" markets reduce aversion to loss realization and lead to lower IPO underpricing.

Interestingly, our first hypothesis that family firms involving family members have higher IPO underpricing than lone-founder and non-family firms is not supported by our analysis. One possible explanation for this apparent "non-result" is that the involvement of family members in the firm does not per se ensure that family owners perceive a greater SEW loss associated with the IPO decision. This notion is reinforced by the evidence that family firms led by a later generation family CEO show higher IPO underpricing. The longer interaction between family and business across generations of family control leads to a higher identity overlap (Deephouse & Jaskiewicz, 2013) and thus greater perceived SEW losses at IPO. Moreover, in later generation family firms, family members become involved in the business early on in life and develop more firm-specific knowledge and skills (Verbeke & Kano, 2012). As a consequence, family members have lower opportunities to diversify their employment risk, leading to greater perceptions of initial SEW losses at IPO. Finally, family involvement alone does not ensure the availability of a family successor willing and able to take over firm leadership (De Massis, Chua, & Chrisman, 2008). Through the experience accumulated across one or more intra-family successions, later generation family firms may have developed their own ways of making succession work (Davis & Harveston, 1998; Handler, 1992), leading to increased confidence that continued family control is feasible and hence greater perceived SEW losses at IPO in later generation family firms. Therefore, even

if Hypothesis 1 is not supported, we can conclude from our findings that the size of the initial SEW losses is an important driver of family firm disposition toward IPO underpricing.

Contribution and Implications

Our study contributes to literature in three important ways. First, we reconcile the conflicting predictions of the behavioral agency model and prospect theory to develop a richer understanding of how family firms address trade-offs between FW and SEW in IPO pricing decisions. We do so by uncovering the different assumptions in prior research on the reference point through which family owners frame the outcomes of IPO underpricing, namely, the level of SEW before IPO in the behavioral agency model (e.g., Gómez-Mejía et al., 2007; Leitterstorf & Rau, 2014), and the level of SEW after IPO in prospect theory (Tversky & Kahneman, 1991; Zellweger et al., 2012). By examining the dynamic properties of the reference point in decision framing, we demonstrate that these two apparently incompatible assumptions can be bridged to provide an explanation for both higher and lower IPO underpricing in family firms compared to lone-founder and non-family firms. Specifically, we refine the behavioral agency model by recognizing that in a two-stage gamble situation, family owner perceptions of initial SEW losses caused by the listing decision (or the reduction in family influence and the corrosion of family values they deem possible due to selling ownership at IPO) can create a discrepancy between the reference point through which they frame the IPO pricing decision and their current wealth position. Thus, our study suggests that SEW does not always lead to higher IPO underpricing as assumed in prior research (Leitterstorf & Rau, 2014). Instead, our study suggests that SEW can add to as well as detract from business valuation at IPO, thus contributing a more complete understanding of the substitution rate at which family firms trade gains and losses of FW and SEW in their strategic decisions (Gómez-Mejía et al., 2014a, 2015).

Second, from a broader theoretical perspective, the aversion to loss realization logic provides the basis for a new approach to examining mixed gambles in family firms. The behavioral agency model's initial insight on loss aversion explains why family firms move their focus from SEW to FW when performance falls below aspirations and their survival is at risk (Chrisman & Patel, 2012; Gómez-Mejía et al., 2007, 2014a, 2015). However, the behavioral agency model's emphasis on the firm's performance history cannot explain why family firms that are successful enough to go to IPO may choose to sacrifice SEW to obtain even greater FW. The two-stage-gamble model allows us to make more precise theoretical predictions by explaining why even when the firm's survival is not at risk, family firms may alternate focus between SEW and FW depending on the temporal context of the decision. In particular, our study suggests that in two-stage gamble situations, the motivation to minimize future SEW losses increases when family owners perceive a greater loss of SEW associated with the initial decision. Moreover, our results indicate that family firms are more likely to minimize SEW losses when they have more positive expectations of recovering the initial SEW losses in the future. Conversely, negative future SEW expectations lead family owners to adapt their reference point more promptly and cede to the temptation to accept initial SEW losses and maximize future FW. Thus, our study underscores the need to model the dynamic properties of decision framing, but also suggests that distinguishing between different stages of the decision process is important to understand how family firms alternate focus between SEW and FW over time.

We address these issues by focusing on business valuation at IPO, which involves a directly observable substitution between FW and SEW (Leitterstorf & Rau, 2014; Zellweger et al., 2012). However, we believe our conclusions hold important implications that extend to many other strategic decisions previously portrayed as one-stage mixed gambles for family firms, such as R&D investments (Chrisman & Patel, 2012), international diversification

(Gómez-Mejía et al., 2010), and acquisitions (Gómez-Mejía et al., 2015; Miller, Le Breton-Miller, & Lester, 2010). In particular, prior behavioral agency model research primarily studied mixed gambles as isolated events, focusing on the firm's performance history and scarcely examining the potential links between subsequent decisions over time. By advancing a more dynamic perspective of decision making, the two-stage gamble model can provide a basis for research to examine family firm behaviors longitudinally and identify patterns of decisions that unfold over time. For instance, a two-stage approach can provide new insights into how family owners' perceptions of SEW losses associated with one stage of R&D investments influence their preferences of the amount or type of subsequent R&D investments, thus explaining the high variability in R&D investments observed among family firms with performance above aspirations (Chrisman & Patel, 2012; Patel & Chrisman, 2014) or the discrepancy between innovation input and innovation output in family firms (Duran et al., 2015). Similarly, future research could examine how the initial SEW losses that family firms experience as they internationalize (Gómez-Mejía et al., 2010), or acquire other businesses (Gómez-Mejía et al., 2015), may be perceived as sunk costs that inhibit reference point adaptation and influence the framing and evaluation of subsequent exit or divestment decisions. In sum, our theoretical refinements expand the behavioral agency model for a more complex and dynamic understanding of strategic decisions in family firms. A deeper consideration of the temporal context of mixed gambles can provide new insights into why, how, and when family firms adapt their focus between SEW and FW in their decision making. The two-stage gamble model presented in this paper enables future research to use the behavioral agency theory perspective to study strategic decisions not only cross-sectionally, but also longitudinally as they enfold over time.

Third, testing our theoretical model in a large sample of IPOs spanning multiple countries and an extended period of time, our study adds to the limited evidence on IPO

underpricing in family firms, which has so far provided mixed support for the behavioral agency predictions on differences in IPO pricing between family and non-family firms (e.g., Brennan & Franks, 1997; Cirillo, Romano, & Ardovino, 2015; Leitterstorf & Rau, 2014; Roosenboom & Schramade, 2006). For example, Leitterstorf and Rau (2014) find a higher level of IPO underpricing in family firms from examining IPOs listed in Germany in the period 2004–2011. Others find significant negative effects of family ownership on IPO underpricing in Italy, France, and the UK (e.g., Brennan & Franks, 1997; Cirillo et al., 2015; Roosenboom & Schramade, 2006). Our study provides a refined test of the behavioral agency model by introducing important theoretical and methodological refinements. The two-stage gamble model addresses the potential self-selection bias that arises when studying strategic decisions as isolated events. Moreover, it substantially improves the predictive power of the behavioral agency model by highlighting the role of critical moderators for a more complete understanding of the complexity of the IPO underpricing phenomenon in family firms.

Finally, our study points to interesting differences between family firms in the UK and continental Europe, raising new questions that warrant future investigation. Consistent with prior research (e.g., Wright et al., 2006), our cross-country analysis suggests that changes in current SEW play a stronger role in directing family firm decision making in continental Europe, whereas family owners in the UK appear to be more willing to accept initial SEW losses at IPO. Nonetheless, family owners in the UK show a stronger disposition toward underpricing IPO shares when they choose a high reputation underwriter who presumably ensures better protection of their SEW after IPO. This pattern of results highlights that cultural and institutional differences between countries do in fact influence the way family firms trade-off SEW and FW in their decisions making, highlighting the need for further research examining the boundary conditions of theory and findings that have so far

been predominantly generated in North American and Western settings (Chrisman & Patel, 2012; Gómez-Mejía et al., 2014a, 2015).

Limitations and Opportunities for Future Research

Our analysis is not exempt from limitations that future research should also take into account. First, the IPOs in our sample relate to relatively young firms, which may have important implications for the trade-off between SEW and FW (Gómez-Mejía et al., 2007). Indeed, SEW is an endowment that changes over time and with duration of family control (Zellweger et al., 2012), suggesting that the rate of substitution between SEW and FW may vary according to the family firm lifecycle stage. Although our study considers the differences between family firms led by the founder and those led by later generation family members, the generalizability of our findings to older or more established family firms remains an empirical question.

Second, we associate the initial SEW losses associated with the listing decision with the type of family involvement in family firms at the time of IPO, particularly (1) the involvement of family members in ownership and management (e.g., Cannella et al., 2015) and the generation of family leadership (e.g., Miller & Le Breton-Miller, 2014). However, as is common in this stream of research (Berrone et al., 2010; Chrisman & Patel, 2012; Gómez-Mejía et al., 2007; Zellweger et al., 2012), we do not directly measure SEW. To ameliorate this issue, we conducted additional robustness tests that provide convergent results ruling out alternative explanations and suggesting that SEW is indeed a main driver of differences in IPO underpricing among different types of family firms. Nonetheless, future research using more direct measures of SEW and its dimensions can extend our work in important ways, for example, examining more nuanced differences in SEW concerns among family firms and how these address decisions involving not only trade-offs between FW and SEW, but also between different dimensions of SEW.

Finally, our study does not consider how substitution between SEW and FW extends after IPO. Given that family owners may sell further shares after going public (Ragozzino & Reuer, 2011; Reuer & Shen, 2004), research examining the evolution of a family firm's ownership structure after IPO would shed additional light on the temporal aspects of decision framing in family firms. For example, it would be interesting to extend our model to consider trade-offs between short- and long-term SEW outcomes. In recent years, a significant proportion of firms going public have been acquired shortly after IPO (Gao et al., 2013). The substitution between FW and SEW may thus not be limited to IPOs but also play a role in the subsequent divestiture decisions and price outcomes. Indeed, the two-stage gamble model can be extended to explain how firm owners can recoup the financial loss of underpricing through subsequently selling at a more favorable price. This may also have substantial implications on the long-run performance of IPO firms. Examining how family ownership and SEW considerations affect stock returns in the long term after IPO is a promising direction for future research.

Implications for Practice

Our study points to important implications for IPO practice. By demonstrating that SEW does not unequivocally add to or detract from business valuation at IPO, we emphasize the importance of family owner perceptions of initial SEW losses associated with the IPO as well as their future SEW expectations for understanding their preferences for IPO underpricing. Thus, we caution that SEW considerations could create biases that may lead to sub-optimal pricing decisions for family owners. As an IPO is a unique event in a firm's history, family owners have little opportunity to learn how to balance SEW and FW considerations from experience in the way investors or financial intermediaries do. Therefore, guidance from research may be particularly useful. For example, our study suggests that family owners can obtain better IPO outcomes by influencing the decision context of the IPO

pricing decision through their choices on ownership retention, the underwriter, and the timing of the IPO. Our study also cautions IPO investors from adopting investment strategies that simply favor family or non-family firm IPOs. Our results indicate that external investors should consider a broader range of factors to maximize their IPO returns.

CONCLUSIONS

Studies examining the trade-off between FW and SEW have contributed much to family firm theory. By recognizing that IPO underpricing presents a two-stage gamble for family firms and illuminating the temporal aspects of decision framing, we extend the behavioral agency model and generate new insights on the conditions under which family owners address mixed gambles through minimizing SEW losses or maximizing FW gains. Taken together, our findings pave the way for dynamic applications of the behavioral agency model, offering new perspectives on how family firms trade-off FW and SEW gains and losses in their decision making, and providing new insights into why, how, and when family firms alternate focus between SEW and FW over time.

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FIGURE 1
A Two-Stage Gamble Model of IPO Underpricing in Family Firms

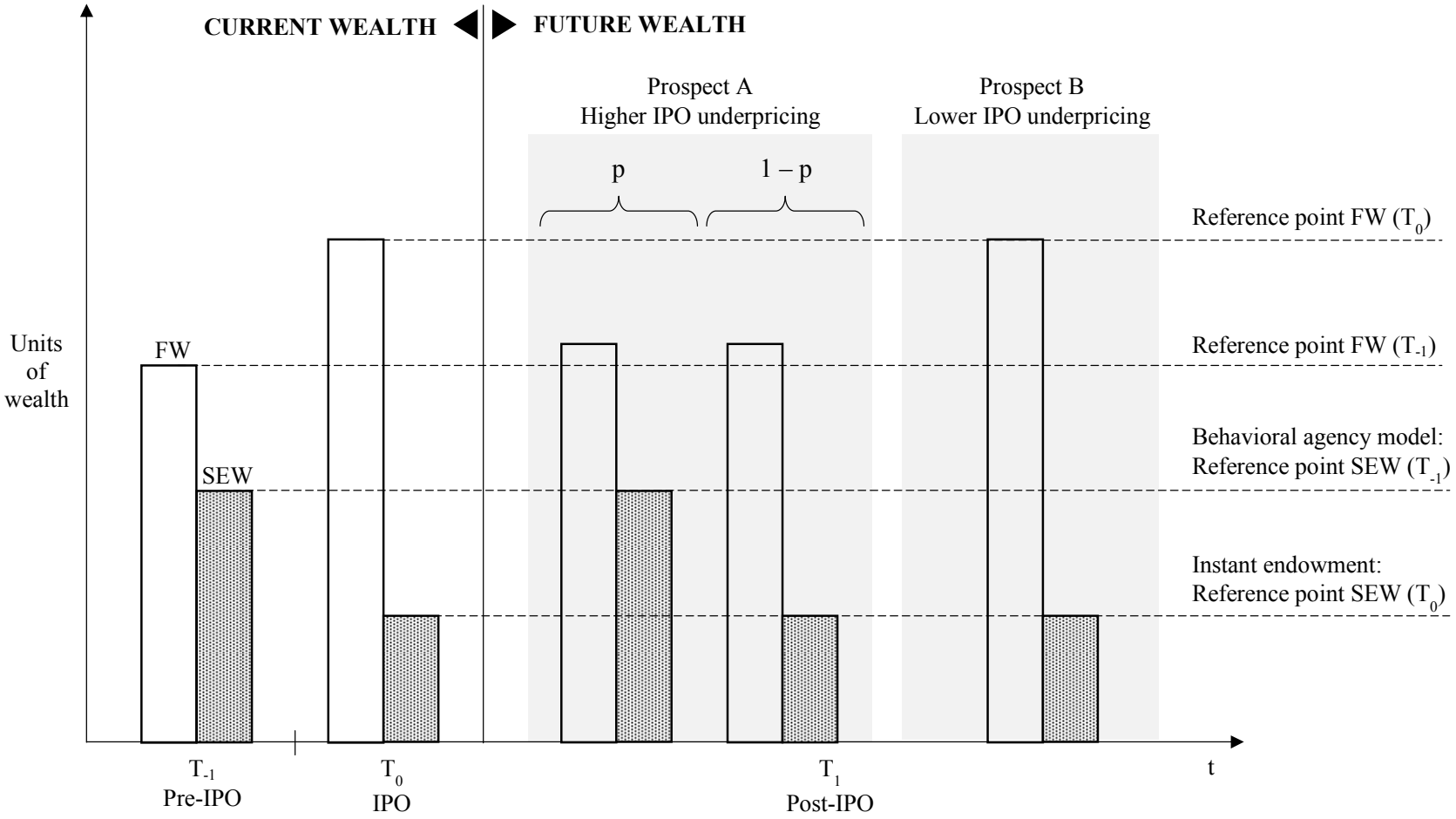

TABLE 1
Country Distribution of the Sample of 1,807 IPOs Conducted in Europe during 1995-2011

	Family firm IPOs				Total family firm IPOs		Non-family firm IPOs				Total non-family firm IPOs		Total sample	
	Founding generation		Later generation				Lone-founder		Other					
	no.	*%*	*no.*	*%*	*no.*	*%*	*no.*	*%*	*no.*	*%*	*no.*	*%*	*no.*	*%*
France	84	26.2	21	17.8	105	23.9	188	32.3	297	37.8	485	35.5	590	32.7
Germany	91	28.3	28	23.7	119	27.1	171	29.3	158	20.1	329	24.0	448	24.8
United Kingdom	95	29.6	43	36.5	138	31.4	151	25.9	250	31.9	401	29.3	539	29.8
Others[a]	51	15.9	26	22.0	77	17.6	73	12.5	80	10.2	153	11.2	230	12.7
Total	321	73.1	118	26.9	439	24.3	583	42.6	785	57.4	1,368	75.7	1,807	100.0

[a] Other countries include Belgium, Italy, the Netherlands, and Portugal. Percentages in the last row refer to the number of total family and non-family IPOs.

TABLE 2
Descriptive Statistics

	Family firms (439 IPOs)		Non-family firms (1,368 IPOs)		Lone-founder firms (583 IPOs)		Founding generation family firms (321 IPOs)		All firms (1,807 IPOs)	
	mean	*median*	*mean*	*median*	*mean*	*median*	*mean*	*median*	*mean*	*median*
Underpricing (%)	15.9	4.1	15.5	3.1†	16.1	3.3	15.8	4.1†	15.6	3.3
Firm size (sales, 2011 €m)	122.0	22.7	402.7	17.3*	246.0	14.0*	104.0†	18.8***	334.5	18.3
Firm age (years)	17.4	10.0	13.4***	8.0**	12.6***	8.0**	9.3***	7.0***	14.4	8.0
Leverage (%)	24.8	13.3	24.5	13.3	25.9	13.3	23.9	12.8	24.6	13.3
Ownership retention (%)	70.8	72.1	71.2	72.8	72.8*	74.0*	71.6†	73.5†	71.1	72.5
IPO momentum (%)	0.72	0.62	1.49†	1.32	0.75	0.61	0.88	0.74	1.30	1.19
Underwriter reputation (%)	1.57	0.57	1.43	0.36†	1.26**	0.23**	1.55	0.57	1.46	0.37

†, *, **, and *** indicate significance at the 10, 5, 1, and 0.1% levels of the t-test and Wilcoxon-Mann-Whitney test for the difference, respectively, in means and medians with respect to family firms. For founding generation family firms, significance is with respect to later generation family firms.

TABLE 3
Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	IPO Underpricing	1						
(2)	Family firm	-0.02	1					
(3)	Firm size	-0.03	0.02	1				
(4)	Firm age	-0.05*	0.07**	0.10***	1			
(5)	Leverage	-0.04	0.00	0.14***	0.16***	1		
(6)	Ownership retention	0.02	-0.01	-0.11**	0.06*	-0.02	1	
(7)	IPO momentum	0.34***	-0.04†	-0.06*	-0.00	-0.05	0.02	1
(8)	Underwriter reputation	-0.04	0.03	0.18***	0.18***	0.09***	-0.14***	0.03

†, *, **, and *** indicate significance at the 10, 5, 1, and 0.1% levels, respectively.

TABLE 4
Heckman Two-Stage Regression Analysis on IPO Underpricing

	IPO likelihood	IPO underpricing					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Firm size	0.15***	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Firm age	-0.48***	-0.08*	-0.09**	-0.08*	-0.07*	-0.08**	-0.07*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Leverage	0.01	0.01	0.01	-0.00	0.03	0.01	0.02
	(0.01)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)
Lone-founder firm		-0.04	-0.04	-0.03	-0.00	-0.05	0.00
		(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Family firm		-0.03		-0.64**	0.03	-0.12*	-0.75**
		(0.05)		(0.23)	(0.05)	(0.06)	(0.23)
Founding generation family firm			-0.10†				
			(0.06)				
Later generation family firm			0.18*				
			(0.09)				
Ownership retention				-0.49**			-0.43*
				(0.18)			(0.17)
Family firm x				0.88**			0.95**
Ownership retention				(0.33)			(0.31)
IPO momentum					3.70***		3.72***
					(0.26)		(0.26)
Family firm x					-2.21***		-2.38***
IPO Momentum					(0.62)		(0.62)
Underwriter reputation						-0.04**	-0.046***
						(0.01)	(0.01)
Family firm x						0.06*	0.07**
Underwriter reputation						(0.02)	(0.02)
M&A intensity	-20.67***						
	(1.83)						
Inverse Mills ratio		0.03	0.02	0.04	0.05	0.04	0.06
		(0.10)	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)
Constant	-2.22***	1.06	1.10	1.49	0.90	0.96	1.14
	(0.30)	(0.90)	(0.89)	(0.91)	(0.85)	(0.90)	(0.86)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.50						
Wald Chi-squared		164.9	173.7	175.2	276.4	174.3	304.1
Observations	7,315	1,807	1,807	1,807	1,807	1,807	1,807

Notes. Heteroskedasticity corrected clustered robust standard errors in parentheses. †, *, **, and *** indicate significance at the 10, 5, 1, and 0.1% levels, respectively.

TABLE 5
Cross-country Analysis

	France				Germany				United Kingdom			
	IPO likelihood	IPO underpricing			IPO likelihood	IPO underpricing			IPO likelihood	IPO underpricing		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Firm size	0.23***	-0.12**	-0.11*	-0.09†	0.12***	-0.02	-0.02	-0.01	0.07**	-0.01	-0.01	0.02
	(0.03)	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Firm age	-0.27***	-0.15*	-0.20**	-0.12†	-0.17***	0.02	-0.01	-0.00	-0.77***	-0.04	-0.03	-0.15
	(0.04)	(0.07)	(0.07)	(0.07)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.18)	(0.18)	(0.13)
Leverage	1.44***	-0.39†	-0.34	-0.25	0.00	0.03	0.02	0.06	-0.07	0.00	0.01	-0.04
	(0.11)	(0.22)	(0.22)	(0.22)	(0.00)	(0.14)	(0.14)	(0.13)	(0.05)	(0.09)	(0.09)	(0.06)
Lone-founder		-0.05	-0.05	-0.01		-0.02	-0.02	0.00		-0.04	-0.04	0.00
		(0.11)	(0.11)	(0.11)		(0.08)	(0.08)	(0.078)		(0.07)	(0.07)	(0.05)
Family firm		-0.12		-1.75*		0.21*		-1.41***		-0.04		-0.34†
		(0.14)		(0.86)		(0.08)		(0.42)		(0.07)		(0.18)
Founding gen. family firm			-0.29*				-0.09				-0.08	
			(0.15)				(0.08)				(0.085)	
Later gen. family firm			0.57*				0.41**				0.04	
			(0.27)				(0.15)				(0.10)	
Ownership retention				-1.57**				0.19				-0.13
				(0.49)				(0.34)				(0.15)
Family firm x				2.07†				2.16***				0.38
Ownership retention				(1.06)				(0.50)				(0.26)
IPO momentum				2.47***				2.44***				5.61***
				(0.58)				(0.67)				(0.26)
Family firm x				-3.86*				0.13				-5.18***
IPO Momentum				(1.64)				(0.96)				(0.78)
Underwriter reputation				-0.08*				-0.01				-0.04**
				(0.04)				(0.02)				(0.01)
Family firm x				0.10				0.04				0.05*
Underwriter reputation				(0.08)				(0.03)				(0.02)
M&A intensity	-3.46***				-4.17***				-9.09***			
	(0.94)				(1.15)				(1.58)			
Inverse Mills ratio		-0.09	-0.09	-0.06		0.03	0.03	0.10		0.03	0.01	0.22
		(0.11)	(0.11)	(0.11)		(0.08)	(0.08)	(0.08)		(0.31)	(0.31)	(0.23)
Constant	-5.27***	3.37***	3.26**	3.52***	-3.24***	0.97	0.97	0.72	0.12	0.57	0.60	-0.05
	(0.40)	(1.00)	(1.00)	(1.05)	(0.46)	(0.8)	(0.83)	(0.84)	(0.39)	(0.55)	(0.55)	(0.44)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.27				0.19				0.18			
Wald Chi-squared		67.2	76.5	110.4		63.8	67	121.6		35.3	36.3	536.3
Observations	2,695	590	590	590	1,364	448	448	448	2,399	539	539	539

Notes. Heteroskedasticity corrected clustered robust standard errors in parentheses. †, *, **, and *** indicate significance at the 10, 5, 1, and 0.1% levels, respectively

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