Stabilization Activity in Italian IPOs

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Abstract

Commission Regulation (EC) No 2273/2003 regulates the price stabilization activities for equity initial public offerings (IPOs) in Europe as a form of permitted market manipulation. To test the actual practices and effects of stabilization we empirically analyze the support provided by the underwriters of 141 Italian IPOs from 2000 through to 2008. We find that the underwriters support the share prices not only by short covering, but also by posting pure stabilization bids. Pure short covering is mostly used by more reputable underwriters for IPOs with higher institutional participation and more secondary shares in the offer, whereas the opposite is true for pure stabilization IPOs. We try to identify some patterns in underwriters' aftermarket activities and analyze the extent to which the stabilization activity, permitted for four weeks after trading begins, produces temporary or permanent effects on share prices.

Keywords: Law and finance, IPOs, underpricing, stabilisation, greenshoe option, overallotment facility, short covering, pure stabilization.

JEL Classifications: G24, G32, G38, K12, K22

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1. Introduction

The stabilization activity of equity initial public offerings (IPOs) by underwriters is a form of temporarily allowed market manipulation both in the US and the EU in order to permit an orderly proceeding of the offerings.[2]

Regulation M and more particularly Rule 104 of the Securities Act and the Securities and Exchange Act for the US,[3] provides for two types of IPOs stabilization devices.[4] The first one is stabilization (i.e. a stabilizing bid, *pure stabilization*). In this case, the underwriting syndicate supports the share's price by standing ready to buy shares in the market in order to be able to complete the shares' distribution.[5] This means that the syndicate temporally buys shares, the price of which is falling below the offering price, in order to be able to sell them at the offering price. The second type of stabilization is the syndicate covering transaction (*short covering*).[6] In this case, the syndicate typically completes the shares' offering by assuming a short position, later covering it by either buying the shares in the aftermarket (in case of overpricing) so stabilizing (increasing) the price by a syndicate covering transaction (i.e. short covering)

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[2] For a comparative introduction to the regulatory regimes of the US and the EU, see Lombardo, 2007, *The stabilization of the share's price of IPOs in the United States and the European Union*, in *European Business Organization Law Review*, 8:521-565. As explained later on in this paper, in Europe, contrary to the US, stabilization is formally also a safe harbor against a possible charge of insider trading.

[3] On Regulation M in force since 1997, see Securities and Exchange Commission, *Anti-manipulation Rules Concerning Securities Offerings; Final Rule*, Friday January 3, 1997, in *Federal Register*, vol. 62, No. 2, pp. 519-550.

[4] For reasons of comparability we do not discuss the third form i.e. penalty bids. According to Regulation M rule 100, a penalty bid is an arrangement that permits the managing underwriter to reclaim a selling concession from a syndicate member in connection with an offering when the securities originally sold by the syndicate member are purchased in syndicate covering transactions.

For a useful introduction to the status quo of the regulation of the stabilization of offerings of securities in the US, see Securities and Exchange Commission, *Amendments to Regulation M: Anti-Manipulation Rules Concerning Securities Offerings; Proposed Rule*, Friday December 17, 2004, in *Federal Register*, vol. 69, No. 242, pp.75773-75794.

[5] According to Regulation M Rule 100, stabilize or stabilizing means the placing of any bid, or the effecting of any purchase, for the purpose of pegging, fixing, or maintaining the price of a security.

[6] According to Regulation M Rule 100, a syndicate covering transaction means the placing of any bid or the effecting of any purchase on behalf of the sole distributor or the underwriting syndicate or group to reduce a short position created in connection with the offering.

or by exercising the greenshoe option (in case of underpricing). This stabilization mechanism, firstly regulated as a stabilization device only with the reform of December 1996, was originally developed for other purposes, i.e. in order to manage the reneging costs deriving from section 5 of the Securities Act that permits only investors' unbinding orders in the first step of the offering process.[7]

Financial economics has developed several hypotheses to explain why underwriters do stabilize shares prices.[8] First, price support may be regarded as form of price manipulation used by underwriters to disguise overpriced offerings or even to permanently increase the aftermarket stock price. Our results provide mixed evidence on this hypothesis even if there is some indication for price decline.

Second, price support can represent a reward to certain kinds of investors, either to retail ones to compensate them for the adverse selection costs or to institutional ones for submission of truthful information during book-building. We find that higher institutional participation in the offering does not lead to higher probability of price support but instead reduces the intensity of the share repurchases. This provides some evidence that stabilization is aimed at retail investors. Nevertheless, we do not confirm the hypothesis that banks with larger retail operations support the issues more. Also, if the lead underwriter manages both the retail and institutional parts of a single offering, the probability of stabilization is much lower.

Third, by means of price support the underwriter might protect his reputation and avoid the decrease in future underwriting revenues. Our results contradict this hypothesis.

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[7] Indeed, originally the overallotment option was used in order to minimize the reneging costs deriving from Section 5 of the Securities Act, according to which investors do express in a first step unbinding orders to be confirmed only after the final prospectus is published (delivered). The greenshoe option to cover the risks associated with the overallotment option was introduced only in 1963. On the reneging costs see Muscarella C.J.-Peavi III J.W.-Vetsuypens M.R., *Optimal Exercise of the Over-Allotment Option in IPOs*, in *Financial Analysts Journal*, 1992, vol. 48, pp. 76-81; Dunbar C.G., *Overallotment option restrictions and contract choice in initial public offerings*, in *Journal of Corporate Finance*, 1997, vol. 3, pp. 251-275; Hansen R.S.-Fuller B.R.-Janjigian V., *The Over-Allotment Option and Equity Financing Flotation Costs: An Empirical Investigation*, in *Financial Management*, 1987, vol. 16, pp. 24-32; Cotter J.F.-Randall S.T., *Firm Commitment Underwriting Risk and the Over-Allotment Option: Do We Need Further Legal Regulation?*, in *Securities Regulation Law Journal*, 1998, vol. 26, pp. 245-268.

[8] A useful review is provided by Jenkinson T.-Jones H., *The Economics of IPO Stabilization, Syndicates and Naked Shorts*, in *European Financial Management*, 2007, vol. 13, pp. 616-642.

We find in fact that less prestigious underwriters stabilize the offerings more and that the acting as co-manager of the offering by an international investment bank does not have any effect on the probability of stabilization. Moreover, underwriters support the share prices more intensively in times of a falling market instead of allowing them to drop since at such times it might be less detrimental to their reputation.

Last, stabilization might be used as a tool for maximizing underwriting profits. We find strong evidence in favour of this hypothesis. Not only do the banks charge statistically higher gross spreads for issues to be stabilized, but they also support the issues at the price level lower than the offering price (buying the shares with 3% discount on average).

There are several empirical studies on the stabilization of share prices of US IPOs. The first study analyzes the effect of price support on the underpricing level of 463 IPOs performed in the US during the period 1982 and 1983, arguing that the high average level of underpricing must be discounted by the contrary effect of price support and that price support ameliorates the price performance only temporarily.[9] The second study examines the stabilization activity in 1523 IPOs carried out on the NASDAQ from January 1982 to September 1987 and finds that stabilization only temporarily influences the share's price.[10] The third study analyzes 504 IPOs for the period January 1993 to September 1994 and provides support for the hypothesis that stabilization favours institutional investors more than retail investors.[11] The fourth study examines 306 IPOs on NASDAQ in the period September 1996 to July 1997 and provides a complex picture of the trading activities of underwriters and particularly of the lead underwriter who serves as the major

[9] Ruud J.S., *Underwriter price support and the IPO underpricing puzzle*, in *Journal of Financial Economics*, 1993, vol. 34, pp. 135-151.

[10] Hanley K.W.- Kumar A.A.- Seguin P.J., *Price stabilization in the market for new issues*, in *Journal of Financial Economics*, 1993, vol. 34, pp. 177-197.

[11] Benveniste L.M.-Erdal S.M.-Wilhelm Jr. W.J., *Who benefits from secondary market price stabilization of IPOs*, in *Journal of Banking and Finance*, 1998, vol. 22, pp. 741-767.

market maker.[12] Finally, a very important study provides evidence that pure stabilization is no longer used in US IPOs and stabilization is carried on mainly by short covering.[13]

In order to provide a picture of the performance and effects on prices of Regulation 2273/2003, we study the stabilization activities in Italian IPOs. Our study allows us to compare the European stabilization practices against those of the US in order to validate empirically the above-mentioned theories of stabilization. The Italian setting is indeed characterized by a different regulatory framework with a wider set of stabilization methods observed in practice.

Unfortunately, empirical (law and) finance is comparatively less developed in Europe than in the US, but the necessity to have an empirical picture of how regulation is in fact working, can for sure help the European legislator to understand financial phenomena and to create better regulation in the same way as empirical research is helping the Securities and Exchange Commission to understand the US case.[14] Our hope is that other researchers will follow for other European countries.[15]

This article is organized as follows. In the second section we describe the current regulatory regime for stabilization of offers of financial instruments in Europe, concentrating on equity shares. In the third section, we provide a picture of the typical working procedure of an Italian IPO. In the fourth section we present the empirical analysis. Conclusions follow in section 5.

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[12] Ellis K.-Michaely R.-O'Hara M., *When the Underwriter Is the Market Maker: An Examination of Trading in the IPO Aftermarket*, in *Journal of Finance*, 2000, vol. 55, pp. 1039-1074.

[13] And partially also by penalty bids. See Aggarwal R., *Stabilization Activities by Underwriters after Initial Public Offerings*, in *Journal of Finance*, 2000, vol. 55, pp. 1075-1103.

[14] See Securities and Exchange Commission, *Amendments to Regulation M: Anti-Manipulation Rules Concerning Securities Offerings; Proposed Rule*, Friday December 17, 2004, in *Federal Register*, vol. 69, No. 242, pp.75773-75794 with continuous reference to the US empirical studies.

[15] We were able to find two studies on the overallotment option for Germany. See Franzke S.A.-Schlag C., *Over-Allotment Options in IPOs in Germany Neuer Markt – An Empirical Investigation –*, October 2003, *working paper* available at www.ssrn.com; Oehler A.-Rummer M.-Smith P.N., *Does Stabilisation by Means of Initial Short Covering Help IPOs to Perform Well During the First Days of Trading?*, March 2006, *working paper* available at http://www-users.york.ac.uk/~pns2/PriceSupport_Revised.pdf.

2. The European Regulatory Framework

Commission Regulation (EC) No 2273/2003 has uniformly regulated since October 2004 the stabilization activity of offerings of financial instruments (transferable securities and more in particular shares and bonds) in the European Union.[16]

This Regulation was implemented in order to regulate two exemptions to the general prohibitions of insider trading and market manipulation as provided for by the market abuse Directive 2003/06/EC.[17] Indeed, the regulation provides for two safe harbours: i) in case of stabilization of financial instruments and ii) in case of share buy-back activities.[18] Both are exempted from the general provisions of market abuse, provided that they are carried on according to some precise conditions established by the same Regulation.[19]

The Regulation governs the stabilization activity during an offering (in terms of significant distribution as defined in Article 2.9) of financial instruments. This means public offerings (both initial and secondary) performed according to the "Prospectus

[16] We assume, as the European Commission did, that the date of practical effectiveness of the Regulation (which entered into force on 23rd December 2003 according to Article 12) was on 12th October 2004, date until when the *market abuse* Directive 2003/2003/6/EC had to be implemented into national legislation. This is because the Regulation was a *safe harbour* to the prohibitions of insider trading and market manipulation provided for by the directive. For this issue, from an European community law perspective, see Streinz R.-Ohler C., *§20a WpHG in rechtlicher Perspektive – europa- und verfassungsrechtliche Anforderungen an das Verbot von Kurs- und Marktpreismanipulationen,* in *Wertpapiermitteilungen*, 2004, vol. 58, pp. 1309-1360, p. 1312.

[17] On the market abuse directive see Bolina H., *Market Manipulation and Insider Dealing in the New Market Abuse Directive (2003/6/EC)*, in *European Banking and Financial Law Journal*, vol. 2001-2002, pp. 555-576; Ferrarini G.A., *The European Market Abuse Directive*, 2004, in *Common Market Law Review*, vol. 41, pp. 711–741.

[18] It is important to stress that the Regulation does not deal with the second possible form of stabilization that is indeed used in practice. We are referring to the stabilization of share prices of listed companies in the secondary market, i.e. independently from an offering of securities. This activity is practiced by listed companies by the way of trading activity, buying back shares in order to signal to the market that the share price is undervalued. This practice is currently regulated in Europe basically according to national regulation integrated by the second Directive on capital requirements 77/91/ECC, as amended by Directive 2006/68/EC.

[19] On the Regulation and particularly on stabilization see Mock S.-Stoll A.-Eufinger T., *Sub. §20a Anh. II VO 2273/2003*, in Hirte H.-Köllers T.M.J. (Hrsg.), *Kölner Kommentar zum WpHG*, 2007, Köln, Carl Heymanns Verlag, pp. 862-911, p. 872; Fleischer H., *Verbot der Marktmanipulation*, in Fuchs A. (Hrsg.), *Wertpapierhandelsgesetz*, 2008, München, Verlag C.H. Beck, pp. 799-882, p. 872; Grüger T.W., *Kurspflege – Zulässige Kurspflegemaßnahmen oder verbotene Kursmanipulation?*, 2006, Baden Baden, Nomos.

Directive" (2003/71/EC) as well as public announced secondary offerings, i.e. private placement to institutional investors that are made without the publication of a prospectus.[20]

As mentioned, and contrary to the US where Regulation M provides for a mandatory legal regime, Regulation 2273/2003 provides only for a safe harbour. This basically means that market abuse (in the form of market manipulation and/or insider trading) will not be prosecuted, provided that the required material and disclosure conditions are respected. At the same time, this also means that i) those activities which would not benefit from the safe harbour should not in themselves be deemed to constitute market abuse (considerandum n. 2); and that ii) behavior which is not directly related to the purpose of stabilization may be object of sanctions (administrative and/or criminal, according to Article 14 market abuse Directive) if the competent authority establishes that the action in question constitutes market abuse (considerandum 3).

The Regulation by its nature under art. 249.2 EC Treaty provides for a uniform regime for stabilization in Europe. This uniformity could be indirectly (partially) relaxed by national rules or traditions regulating the offering (and particularly IPOs) and by the different incentives coming from the administrative and/or criminal sanctions as provided by national law and administered with respect to enforcement by the national authorities.

This framework of flexibility in the effectiveness of the Regulation, which is in contrast to its legal nature aiming at uniformity, is also shaped by the fact that the general prohibitions of market abuse (i.e. insider trading and market manipulation) are provided by a directive which has to be implemented by national regulation under art. 249.3 EC Treaty. Practically, this means that the Regulation provides a uniform safe harbour to general prohibitions which partially have national legal character. It follows that in practice the safe harbour will necessarily have a mixed nature (i.e. European and national) because it will also be, at least indirectly, characterized and qualified by the national nature of the national prohibitions it is an exemption from.

[20] The development of such private placement to institutional investors has been increasing constantly in recent years. See Bortolotti B.-Magginson W.-Smart S.B, *The Rise of Accelerated Seasoned Equity Underwritings*, January 2007, *working paper* available at www.ssrn.com.

With respect to a typical IPO, the Regulation (Articles 7-11) provides for some conditions that have to be respected. The stabilization activity (meaning any purchase or offer to purchase relevant securities under Article 2.7 Reg.) can be carried out for 30 days after the first day of listing and cannot be above the offering price (not considering here the possibility of stabilization during the grey market). The overallotment facility and greenshoe option (ancillary stabilization) may not amount to more than 15% of the original offer and the naked short position may not exceed 5% of the original offer. Given the *ex ante* disclosure regime of stabilization as provided for by the prospectus system (Directive 2004/71/EC and Regulation (EC) 809/2004), disclosure requirements provide two kinds of *ex post* disclosure: i) the stabilization activity must be notified to the competent authority no later than the end of the seventh daily market session following the date of execution of the transactions; ii) within one week of the end of the stabilization period (i.e. the 30 days), the following information has to be disclosed to the market: a) whether or not stabilization was undertaken, b) the date at which stabilization started, c) the date at which stabilization last occurred, d) the price range within which stabilization was carried out, for each of the dates during which stabilization transactions were carried out.

By briefly comparing the European regulatory regime with the US one with respect to disclosure, we note that in the US pure stabilization has to be promptly disclosed to the counterparty and to the market while the syndicate covering transaction has to be *ex ante* disclosed only to the self-regulatory body (i.e. the Stock Exchange, or regulated market) but not to the market/public (Regulation M Rule 104(h)). On the contrary, in Europe we note that unfortunately the material regulatory regime and consequently also the disclosure regime do not distinguish between pure stabilization and syndicate covering transaction for disclosure purposes and that in both cases the disclosure is only *ex post*, i.e. when transactions have already been made.

This fact is important because for European data, researchers have to be aware that there is no formal way to identify two types of stabilization, as in the US case. Indeed, in the US the two different types of stabilization operate in two different contexts and have two different goals. We note that in the US i) pure stabilization is meant to facilitate the distribution, operating in order to facilitate the selling activity mainly but not

necessarily before listing and negotiations on the market start, while ii) the syndicate covering transaction operates as a form of stabilization in the aftermarket, when listing and negotiations start and the distribution has been completed, mainly with the different aim to try to counterbalance a price decline and flipping.[21] These statements need to be specified with respect to pure stabilization, i.e. with respect to point i). Indeed, in the past in the US IPO there was possibly already an informal market (over the counter market) or a grey market developing before negotiation started officially on the exchange.[22] This implied the possibility that the price on the market decreased in comparison to the offering price which was fixed and could not be reduced (because of the resale price maintenance clauses)[23] so that the banks' syndicate, which operated in a firm commitment contract and was composed by banks organized as partnerships with a low level of capital, had to buy shares on the grey market in order to be able to sell them and complete the distribution so putting stabilizing bids (pure stabilization *ex* Rule 10b-7, i.e. former Rule 104). Furthermore, to the extent that the distribution was not completed before the negotiation officially started on the exchange and the price decreased in the aftermarket, the syndicate had to continue to buy shares in the aftermarket (i.e. when negotiations had already officially started) in order to be able to sell them and complete the distribution. Currently, the situation is completely different because i) the grey market no longer exists because of the limits posed by Rule 105 of Regulation M and ii) the distribution is generally completed before listing and negotiation start, so that the practical necessity of using the stabilizing bids in order to complete the distribution is no

[21] Flipping is the selling activity of short term investors who want to sell the shares in the aftermarket in order to capitalize the profits (in case of underpricing) or to limit the losses (in case of overpricing). Flipping is concentrated in the first day or days of trading and causes, if too strong and not absorbed by sufficient demand, a decrease in the price. On flipping, see for the US context, Aggarwal R., *Allocation of initial public offerings and flipping activity,* in *Journal of Financial Economics*, 2003, vol. 68, pp. 111-135.

[22] For the US grey market in historical perspective see, Loss L.-Vernon R., *When-issued Securities Trading in Law and Practice*, in *Yale Law Journal*, 1945, vol. 54, pp. 741-798.

[23] On the price resale maintenance system see Comment, *Price Maintenance in the Distribution of New Securities*, in *Yale Law Journal*, 1947, vol. 56, pp. 333-355; Gerla H.S., *Swimming Against the Deregulatory Tide: Maintaining Fixed Prices in Public Offerings of Securities Through the NASD Antidiscontinuing Rules*, in *Vanderbilt Law Review*, 1983, vol. 36, pp. 9-54.

longer present. This is the basic reason why they are in fact no longer empirically observed.[24]

On the contrary, in the European legal regime, at least for IPOs, pure stabilization and the syndicate covering transaction cannot be so easily distinguished in comparison to the US regime from a legal perspective. Indeed, the Regulation i) provides for only stabilization (as defined in Article 2.7 Reg.), which can be done with or without ancillary stabilization (as defined in Article 2.12 Reg.), ii) does not provide a notion of syndicate covering transaction, it being indirectly understandable only from the mechanism of ancillary stabilization in case of overpricing, iii) does not really regulate stabilization in order to facilitate the distribution,[25] because the distribution is normally concluded and completed when listing and negotiation start, but more as a devise to try to fight the flipping activity of short term investors in the aftermarket (considerandum 11 and Article 2.7 Reg.).[26] With respect to this last statement, i.e point iv), it is possible that the banks' syndicate still has unsold shares in its inventory when the negotiations start on the exchange (meaning regulated market), so that stabilization could be used, like pure stabilization in the USA (also) in order to complete the distribution in case of overpricing in the aftermarket. This situation, even if possible in theory, is probably not present in reality because the bookbuilding and selling methods are so developed, that the distribution of shares is completed when negotiations start. This means that all shares are

[24] Another explanation is that to the extent that the distribution is still not completed after negotiation starts, underwriters do not use pure stabilization in order to avoid to "advertise that the distribution is incomplete and that the aftermarket may be weak", Jenkinson T.-Jones H., *The Economics of IPO Stabilization, Syndicates and Naked Shorts*, in *European Financial Management*, 2007, vol. 13, pp. 616-642, p. 621 referring to Aggarwal (2000).

[25] With respect to a possible grey market and to the possibility to stabilize on the grey market this possibility is not excluded *a priori* but is left to the regulatory competence of the Member States (see Article 8.2 point 2). In Italy there is no grey market for IPOs but a grey market for Italian IPOs is typically present on the contrary in London.

[26] Considerandum 11 states: "Stabilization transactions mainly have the effect of providing support for the price of an offering of relevant securities during a limited time period if they come under selling pressure, thus alleviating sales pressure generated by short term investors and maintaining an orderly market in the relevant securities. This is in the interest of those investors having subscribed or purchased those relevant securities in the context of a significant distribution, and of issuers. In this way, stabilization can contribute to greater confidence of investors and issuers in the financial markets.". From this statement it is apparent that the main scope of the stabilization activity is to limit the IPO investors' incentive to flip the shares if they see that their prices go down considerably.

sold and the inventory position of the syndicate is zero or negative (overallotment plus possible naked short).[27]

This means that in Europe researchers have to specify precise statistical/economic criteria to distinguish between pure stabilization and syndicate covering transactions in order to be able to compare the US and European regimes given the legal differences between the two.[28]

3. Italian IPOs and Stabilisation Regimes

As mentioned, stabilization activity has been uniformly regulated in Europe only since 12th October 2004, when the Commission Regulation (EC) 2273/2003 became applicable after being in force since 23rd December 2003. This means that from a regulatory perspective our sample refers to two different regulatory regimes. The first regime up to October 2004 was the national Italian one, with the European unified one thereafter. In this section we briefly describe the two regulatory regimes as well as the typical IPO regime.

In Italy, a first regulation for stabilization during (initial and secondary) offering of securities was introduced by Consob in June 1992 on the basis of Article 6.4 of the law 149/1992.[29] This first regulation, which was modified twice,[30] remained in force until May 1999. Indeed, in 1998 in Italy the Consolidated Decree on Finance (TUF) was enacted, which regulates Italian securities regulation (and also IPOs) and is integrated by Consob regulations and rules. With respect to the stabilization activity Article 15 of *Regolamento Emittenti* (RE), provided that the activity of selling and buying (*compravendita*, but basically the stabilization activity) could be carried out for 30 days after the first day of listing provided the price was not significantly influenced and that

[27] For the Italian case we were able to find just one case in which the syndicate had a positive inventory position, but only with few shares.

[28] We have decided to split our sample into three groups as explained in section 4.B.

[29] See Consob, *Delibera* 6237 of 3rd March 1992.

[30] See Consob, *Delibera* 9570 of 8th November 1995 and Consob, *Delibera* 10244 of 30th September 1996.

the greenshoe option could be exercised.[31] With respect to disclosure, Article 15 (and the Attachment 1L) provided for disclosure of the buying and selling activity while Article 13 RE (and the Attachment 1F) provided that up to a maximum of five days after the end of the offering period the global coordinator published the results of the global offering to be transmitted also to the Stock Exchange and to Consob.[32] So we have data both on stabilization (but partially with respect to the total activity of selling and buying i.e. *compravendita*) and on the offering results.

As already mentioned, for the period after October 2004 we have the Regulation 2273/2003 directly regulating stabilization both from a material and disclosure perspective.[33] From a disclosure perspective it has to be mentioned that communications on stabilization activities are (have been) made according to Attachment IL, which does not require (or has been interpreted as not requiring) the specification of condition d) of Article 9 paragraph 3 of the Regulation (i.e, d) the price range within which stabilization was carried out, for each of the dates during which stabilization transactions were carried out). In fact, condition d) was applied only in some communications, so that we were unable to systematically collect data on this kind of information.

With respect to the IPO regime this is a very standardized one on the basis of the international standardized practices adapted to the Italian legal system also shaped by European securities regulation.[34] The IPO is done by way of a global offering divided

[31] According to the first version of Article 15 RE, stabilization in case of IPO could be done for 30 days after the closing of the adhesion period (i.e. of the offering). But on the basis of Consob, *Comunicazione* DEM/1031710 of 27th April 2001, Consob in April 2001 communicated that its interpretation was that stabilization in case of an IPO could be done for a period of 30 days after negotiation started. So we have decided to consider the period for 30 days after negotiation started. With respect to the grey market, as mentioned in Italy there is no grey market for Italian IPOs as there is a grey market present in London which does not legally include stabilization.

[32] See also Consob, *Comunicazione* DEM/1031710 of 27 April 2001.

[33] There was a transition period between October 2004 and November 2005 when Article 15 was partially modified before assuming the current text in November 2005 (now in Article 34-*septies* RE). See Consob, *Delibera* 14743 of 13th October 2004 (and Consob, *Comunicazione* DEM/4090018 of 14 October 2004) and Consob, *Delibera* 15232 of 29th November 2005.

[34] On the typical legal as well as economic aspects of Italian IPOs, see Ferrarini G., *Sollecitazione del risparmio e quotazione in Borsa*, in Colombo G.E.-Portale G.B., *Trattato delle società per azioni*, vol. 10, tomo 1, 1993, Torino, Utet, pp. 3-314, p. 184; Donzelli A.-Zambelli S.*, Il collocamento di titoli azionari in Italia e sui mercati internazionali: recenti sviluppi e temi di approfondimento*, in Rabitti Bedogni C. (a cura di), *Il diritto del mercato mobiliare*, Milano, Giuffrè, 1997, pp.167-189; De Mari M., *La quotazione di azioni nei mercati regolamentati:*

into a public offering for retail investors (the public offering or retail offering) according to the material and disclosure requirement of TUF, and an institutional offering for institutional (national and international) investors according to Regulation S and, if US institutional investors are present, Rule 144A.[35] The price system is (practically always) based on the bookbuilding procedure. Given the initial price range presented in the offering period, the final offering price (the same for the public offering and for the institutional offering) and the final quantity are determined at the end of the offering period, typically the day before listing and negotiations start on the exchange (meaning regulated market) when also the results of the allocations are determined.[36] There are typically two syndicates and two lead managers: the first one for the public offering (where retail investors express binding orders) created before the offering periods start and the second one for the institutional offering (where institutional investors express unbinding orders, i.e. simple manifestation of interests) created when the offering period ends. The global coordinator of the global offering manages the coordination of the two offerings, determining (together with the company) the final price and the final quantity. According to the information revelation theory, institutional investors are rewarded for pricing disclosing information by getting about 70% of the underpriced shares. Claw back clauses are used to bring the two offerings in equilibrium by shifting shares from the one to the other in order to be able to manage the different levels of over/undersubscriptions.

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profili negoziali e rilievo organizzativo, 2004, Torino, Giappichelli; Dalle Vedove F.-Giudici G.-Randone P.A., *The evolution of Initial Public Offerings in Italy*, in *BIT Notes di Borsa Italiana*, 2005, *working paper* available at www.borsaitaliana.it; Dalle Vedove F.-Giudici G., *Come e a che vengono assegnati i titoli azionari nelle Offerte Pubbliche Iniziali*, in *Analisi Finanziaria*, 2007, pp. 32-45; Boreiko D.-Lombardo S., *Shares Allocation and Claw back Clauses in Italian IPOs*, February 2008, ECGI *working paper* available at www.ssrn.com.

[35] On Regulation S and Rule 144/A see Steinberg M.I.-Lansdale Jr. D.L., *Regulation S and Rule 144A: creating a workable Fiction in an Expanding Global Securities Market*, in *International Lawyer*, 1995, vol. 29, pp. 43-62; Trevino L.F.M., *Access to U.S. Capital Markets for Foreign Issuers: Rule 144A Private Placements*, in *Houston Journal of International Law*, 1993, vol. 16, pp. 159-212; Sjostrom W.K Jr., *The Birth of Rule 144A Equity Offerings*, in *University of California at Los Angeles Law Review*, 2008, vol. 56, pp. 409-449.

[36] On bookbuilding, see Lombardo S., *The Stabilisation of the Share Price of IPOs in the United States and the European Union*, in *European Business Organization Law Review*, 2007, vol. 8, pp. 521-565, p. 528, Willamowski M., *Bookbuilding*, 2000, Köln, Carl Heymanns Verlag; Hein T., *Rechtliche Fragen des Bookbuildings nach deutschem Recht*, in *Wertpapiermitteilungen*, 1996, vol. 50, p.1-7.

Even if the stabilization activity is performed in order to support the price of the entire offering (meaning public offering and institutional offering), in the aftermarket the overallotment facility and greenshoe option is inserted in the prospectuses only in the interest of the institutional syndicate probably also as a way of managing institutional investors unbinding orders.[37]

[37] We were able to collect data on the overallotment facility which can be granted from anybody (i.e., also from not selling shareholders) and on the greenshoe option which can be granted only from the offeror, i.e. either from the listing company or from the selling shareholders. The practice is indeed mixed and presents various kinds of combinations.

4. The Empirical Analysis

A. Sample and Data

The article examines all IPOs listed on the Milan Stock Exchange (both STAR and Nuovo Mercato segments) from January 2000 to December 2008. The offering, subscription and distribution details were sourced from IPO prospectuses. The details on actual overallotment, exercise of the greenshoe option, short covering and underwriters' aftermarket price-support activities were taken from the listing firms' and underwriters' records stored in the Market Connect database of the Italian Stock Exchange (Borsa Italiana Spa). All market data comes from DataStream. A total of 149 IPOs are identified. Two IPOs were excluded because their offering prospectuses stated that there will be no stabilization activity following the offering and another six due to missing or erroneous stabilization records. The final sample contains 141 IPOs, of those 83 were stabilized by the underwriters and 58 were not.

The data on stabilizing activities of the underwriters was gathered from the official communications (and press-releases) submitted to the regulating authorities. As mentioned, by regulation, a listing company or the member of the syndicate implementing price support had to communicate the nature of the stabilizing activities undertaken within the seven days following the end of the stabilization period, i.e. the detailed information regarding the dates of the intervention and the number of shares purchased or sold. Unfortunately, we were not able to collect the price support data for the IPOs listed before year 2000. Given the reluctance of the investment banks to disclose their private information and considering that the first draft of the Italian regulation was not very clear (or not properly understood by practitioners) regarding the nature of the information to be disclosed, the first official communications did not follow any specific standard and as a result contained only limited information. For example, for almost all IPOs listed in 2000-2001 the official communications contained only the total amounts of shares bought and sold by the stabilizing syndicate. In nine cases only the total share turnover was reported, thus making it impossible to understand how many shares were bought and how many sold. Only later, after Consob published an amendment to the

original document, did the official communications start to report values alongside volumes. Nonetheless, up to the end of the time period under study, still only 13 IPOs out of those 83 stabilized had disclosed the detailed data on intervention activities on a daily basis.[38]

B. Types of Price Stabilization

Of the three types of underwriters' aftermarket activities, the data allows us to study only pure stabilization purchases and short covering transactions.[39] Unlike the direct US evidence, which is based on a US study of a selected sample of the US IPOs listed in 1997,[40] in Italy we observe a widespread use of pure stabilization bids, short covering, or a combination of both (as we have decided to define them). Apart from purchasing the shares in the aftermarket to deliver the overalloted shares, underwriters frequently buy the shares shortly after listing and then resell them later. As already mentioned, the Italian/European regulation does not require stabilization bids to carry any identification flags at the time of trading; disclosure happens only after, during the seven days following the end of the stabilization period. This might explain why underwriters are willing to engage in pure stabilization, as the signal that the offering was supported in order to keep the price at a higher level becomes public knowledge only one month later.

In order to classify the stabilization activities of the underwriters, we outline briefly the main steps undertaken by the underwriter in connection with the possible stabilizing activities. First, having filled the order book with indications of interest from institutional investors and having collected the binding orders from retail investors, the underwriter decides on the final price and quantity of shares offered to the market. The issue is usually oversold with overallocated (i.e. overalloted) shares borrowed under the overallotment facility and greenshoe option agreement, so that the underwriter starts with

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[38] These limitations reduce our sample considerably for the purpose of analyzing the length of the intervention period or profitability of the stabilizing activities to the underwriter. Nevertheless, the information disclosed in the communications (press-releases) allows us to split the sample into stabilized and non-stabilized offerings and to classify the market interventions as pure stabilization or short covering transactions.

[39] We do not have any data on the usage of penalty bids to control flipping in Italian IPOs, nor do we find such provisions in IPO prospectuses made available to the general public.

[40] See Aggarwal R., *Stabilization Activities by Underwriters after Initial Public Offerings*, in *Journal of Finance*, 2000, vol. 55, pp. 1075-1103.

a short position in the stock (in favor of institutional investors). It is important to note that the underwriter does not have to decide immediately on whether to cover the short position with the purchases in the aftermarket or to exchange the borrowed shares with those deriving from the exercise of the greenshoe option. Second, given the price developments, the underwriter can buy the shares in the aftermarket at his discretion even in excess of the overalloted amount with the intent to sell them back later or to keep them in his inventory. Lastly, at any time following listing but no later than 30 calendar days he must decide whether to exercise the greenshoe option (i.e. to buy the shares from the offeror) and to what extent. If the accumulated inventory position is lower than the amount of shares overalloted, he can cover this deficit with a full or partial exercise of the greenshoe option; if the inventory position is equal to the overallotment, then the shares borrowed under the overallotment greenshoe option are given back and the deficit is fully covered by aftermarket purchases; if the inventory position is higher than shares overalloted, the underwriter carries excess shares in his inventory to sell at a later date. The combination of exercised greenshoe option, short covering and aftermarket purchases can take various forms as those three activities are not mutually exclusive for a particular IPO.

Based on the arguments above and particularly on the differences with the US regime where pure stabilization can be done only to facilitate the distribution (before and after negotiations start on the market), while short covering is done in the aftermarket to stop a price decline and to fight flipping (i.e. after the trading starts), for purposes of the European/Italian analysis we have decided to classify the aftermarket activities of the underwriters into 3 broad categories. The first one is what we call the "pure short covering" activity. This happens when the underwriter buys in the aftermarket (i.e. when listing commences and negotiation starts) only the shares needed to cover the net short position resulting from shares overalloted minus the shares bought under greenshoe arrangement.[41] The second category contains IPOs where the short position was covered fully from the shares coming from the exercised greenshoe option, but the underwriter

[41] Out of 18 IPOs with pure short covering purchases, 13 IPOs had the greenshoe option partially exercised, covering on average 25 per cent of the overalloted shares. Five IPOs presented only short covering without the exercise of the greenshoe option to cover the short position derived from overallotment.

still bought some shares in the aftermarket and, at the end of the 30 days following listing, either sold them completely or carried them forward in his inventory. We have decided to label this category "pure stabilizing" activity. If the aftermarket activities for a particular IPO were a combination of the first two (i.e. a mix of short covering, greenshoe exercise and pure stabilization), we assigned this listing into the third category we call "combination of both" category.[42]

Based on our classification, Table 1 summarizes the frequency of the underwriters' aftermarket activities by years. One of the striking facts in Italian IPOs is the complete absence of the naked short positions.[43] Not one IPO with available data had any amount of shares overalloted in excess of the available overallotment facility of 15% (and corresponding greenshoe option). This finding stands in stark contrast with available US evidence, with an average naked short position of 5 per cent.[44] The difference cannot be explained by institutional factors - the naked short positions up to 5% of the global offer are explicitly permitted by the Regulation. One of the possible explanations is that this practice has recently become less favourable, although more evidence is needed to reach any conclusion.[45]

The table shows that around 60% of all issues were stabilized, although this proportion varies from year to year, with almost all IPOs stabilized in year 2001 and only 25% in year 2006. For some IPOs listed in 2000, we do not have any data on the amount of shares overalloted. Due to the loopholes in the first draft of the regulation governing the disclosure requirement for Italian IPOs, up to the year 2001 the companies announced

[42] There is a residual group which is too small to be considered for statistical purposes, but which is interesting at least to mention. It is composed by the overpriced IPOs with both short covering and furthermore pure stabilization bids done in the market but without exercising the greenshoe option. This group includes 8 IPOs (I Viaggi del Ventaglio, Air Dolomiti, Negri Bossi, Astaldi, Isagro, DMT, Procomac Industries, RCF Group) that are quite similar to the other IPOs.

[43] We have to say that also German data shows that the naked short is not used. On this point, see Fleischer H., *Verbot der Marktmanipulation*, in Fuchs A. (Hrsg.), *Wertpapierhandelsgesetz*, 2008, München, Verlag C.H. Beck, pp. 799-882, p. 881.

[44] See Aggarwal R., *Stabilization Activities by Underwriters after Initial Public Offerings*, in *Journal of Finance*, 2000, vol. 55, pp. 1075-1103; Boehmer E.-Fishe R.P.H., *Price Support by Underwriters in Initial and Seasoned Public Offerings*, February 2002, *working paper* available at www.ssrn.com.

[45] On the economics of the naked short related to the (incentives') structure of the underwriting syndicate, see Jenkinson T.-Jones H., *The Economics of IPO Stabilization, Syndicates and Naked Shorts*, in *European Financial Management*, 2007, vol. 13, pp. 616-642.

the offering results without reporting the total amount of the shares overallotted and later covered by purchases in the aftermarket instead of exercising the greenshoe option. Given that we do not know how many shares were short covered, we cannot split the underwriters' reported buy-and-sell aftermarket activities into short covering or pure stabilization. Therefore, those IPOs are reported separately in the table.

[Insert Table 1 about here]

Second, only twenty two per cent of all IPOs are stabilized by pure short covering, i.e. when the underwriter buys the shares in the aftermarket but only to the amount equal to the difference between the total amount of shares overalloted and the exercised portion of the greenshoe option. This aftermarket activity seems to be the only one used by US underwriters (ignoring penalty bids),[46] whereas our sample shows a much richer set of options used to stabilize the offerings. Nevertheless, pure short covering transactions become the most popular method of stabilization towards the end of the sample.

Third, we see that almost one third of all IPOs are supported by pure stabilization. Here, we define pure stabilization as the purchase of the IPO shares when the entire amount of shares overallotted was covered by the exercise of the greenshoe option or there was no overallotment at all. From the IPOs with available daily transaction data we see that this activity usually takes the form of buying the shares in the first half of the stabilization period and later selling them back leaving the underwriter's inventory either positive or empty at the end.

The last category consists of the IPOs where both short covering and pure stabilization bids are used to support the price. As in the case of the previous category, its use has declined in recent years.

C. Characteristics of Stabilized Offerings

Table 2 shows summary statistics for stabilized and non-stabilized offerings separately. As expected, the stabilized IPOs have a much lower level of initial

[46] See Aggarwal R., *Stabilization Activities by Underwriters after Initial Public Offerings*, in *Journal of Finance*, 2000, vol. 55, pp. 1075-1103.

underpricing at the close of the first day of trading, with median value of -0.3%. Non-stabilized issues perform much better, with both mean- and median differences statistically different at any significance level. Given that the closing prices might be influenced by stabilizing activities, we calculated underpricing by using the opening price of the first trading day. The difference between the two abovementioned groups of IPOs is even more pronounced, with stabilized offerings opening at the price 6.7% lower than the IPO price, whereas non-stabilized ones start trading 14.0% above. The average IPO firm in our sample is 33 years old, raising 168 million Euros on average and paying 4% of the proceeds to the underwriters. Around one third of shares sold to investors comes from selling shareholders, with 75 percent allocated to institutional investors. The subsample of stabilized IPOs is rather different in several respects. First, these issues have a much lower level of oversubscription, with a higher proportion of shares allocated to retail investors. Fewer shares come from selling shareholders, the price range for the IPO is much wider and eventually the IPO is priced on average at the lower range bound. Underwriters receive significantly higher fees for the IPOs they support in the aftermarket, and those IPOs are usually preceded by a falling stock market.

[Insert Table 2 about here]

Some scholars have stressed the importance of an underwriter's reputation on the probability of after-market support for underwritten IPOs.[47] Our results, surprisingly, show that the stabilized offerings are underwritten by less reputable underwriters. We tried several methods for underwriter ranking. First, we tried to use the largest ranking list compiled by US researchers.[48] However, it contained only 2 leading Italian underwriters, leaving around 45 percent of all IPOs unclassified. Second, we looked at whether the syndicate included an international reputable investment bank and looked at the average value across the IPO subgroups. The stabilized IPOs were underwritten less by international underwriters, although the difference is not statistically significant.

[47] See e.g. Lewellen K., *Risk, Reputation, and IPO Price Support*, in *Journal of Finance*, 2006, vol. 61, pp. 613-653.

[48] See Loughran, T.-Ritter J., *Why has underpricing increased over time?*, in *Financial Management*, 2004, vol. 33, pp. 5-37.

Third, we ranked all underwriters by the total amount of IPO proceeds underwritten by them as a percentage of total proceeds of all IPOs listed in 1999-2008 in Italy. This ranking again confirmed our findings. Interestingly, we find that the issues underwritten by coordinators that are commercial banks are stabilized more often.

D. Analysis of Determinants of Stabilization

In this section we try to identify the main characteristics of the stabilized offerings. Using stabilization records we can unambiguously identify offering with or without price support. Unlike all the previous studies, we do not have to make any assumptions regarding the occurrence of the stabilization based on the weak initial performance of the stock.[49]

Price support theories developed so far have focused on the effect of informational asymmetries and underwriter reputation on the occurrence of stabilization. Some developed models put forward the existing informational asymmetries and riskiness of the IPOs as the primary determinants of the stabilization activities for such stocks.[50] On the other hand, some studies show that underwriters' reputation could play a key role in the stabilization decision and that underwriters with retail operations divisions are more active in stabilizing stocks than pure investment banks.[51]

We use several proxies to capture the degree of informational asymmetries and IPO risk. We take log of IPO proceeds and log of total assets as proxies for size and the firm's age as the proxy for its maturity. The larger and older the firm, the lower informational asymmetries are. Internet firms are also assumed to be riskier, so we included a corresponding dummy as well.[52] As an additional proxy for risk we tried the

[49] Apart from the Agraawal (2000) study, all other empirical evidence takes this approach. However, our data indicates that of 83 stabilized issues, 27 of them had positive returns on day 1, with 13 issues underpriced by more than 5%. Moreover, out of 58 non-stabilized issues 5 had negative first-day returns.

[50] See, respectively, Benveniste L.M.-Busaba W.Y.-Wilhelm JR. W.J., *Price stabilization as a bonding mechanism in new equity issues,* in *Journal of Financial Economics*, 1996, vol. 42, pp. 223-225; Chowdhry B.-Nanda V., *Stabilization, Syndication, and Pricing of IPOs*, in *Journal of Financial and Quantitative Analysis*, 1996, vol. 31, pp. 24-42;

[51] See e.g. Lewellen K., *Risk, Reputation, and IPO Price Support*, in *Journal of Finance*, 2006, vol. 61, pp. 613-653.

[52] The internet dummy was insignificant in all the regressions, therefore at the end we omitted it from tabulated equations.

standard deviation of daily stock prices over one month following the 30 days stabilization period. Higher gross spreads, wider price ranges and longer subscription periods are also thought to be associated with the riskier offerings. We also use the one year market-adjusted buy-and-hold returns as an additional proxy for the riskiness of the listing firms.

To address the market conditions prior to the IPO we included the return on the MIB30 index 100 days before the listing date, the market return on the day of listing, and offer price revision variables. We also included the offer oversubscription variables to model the demand for particular IPOs. In line with other studies, we included the proportion of shares coming from selling shareholders to control for potential agency conflicts.[53]

We also included several variables to control for the underwriter's characteristics. Given the exclusion of national underwriters in any comprehensive international list of underwriter's ranking, we estimated the IPO market share of each underwriter and used it as a proxy for its reputation and size. To control for potential reputational gains for the syndicates that included an international investment bank to promote the IPO abroad, we used a dummy variable taking a value of 1 if the list of underwriters (or "global coordinators" as they are called in Italian business language) included a foreign underwriter. In order to test the hypothesis that retail banks stabilize more to protect their reputation with investors we included two dummies. The first dummy equals to one if an underwriter acts as a member of the retail offer syndicate, and to 0 if the task of the retail offer order collection and share allocation is delegated to the designated commercial bank. The second dummy equals to one if the global coordinator is itself a bank with retail operations and zero otherwise. The percentage of the global offer allocated to institutional investors is also included in the regression.

[Insert Table 3 about here]

In order to identify the likely determinants of the stabilization decision we run a set of logit regressions with the dependant variable being the stabilization dummy. First,

[53] See Ljungqvist, A.-Wilhelm Jr. W.J., *IPO pricing in the dot-com bubble*, in *Journal of Finance*, 2002, vol. 58, pp. 723-752.

the regressions reveal that firm's age or price range size do not seem to increase the probability of the underwriter's supporting the issue after the listing. Nevertheless, bigger issues with higher underwriter commissions are more likely to be stabilized. These findings indicate that riskier offerings are supported more often by underwriters.

Next, we turn to specific underwriter characteristics to identify those banks that stabilize more often. The presence of an international investment bank acting as a joint underwriter does not seem to have any effect on the stabilization choice for the particular IPO, nor does the fact that the underwriter is a commercial bank. However, if the underwriter is also directly involved in the share subscription and distribution to retail investors, then such IPOs are less likely to be stabilized. This contradicts the hypothesis that retail banks tend to stabilize the offerings more[54] and provides indirect evidence that price support is primary designated for the institutional investors in exchange for price-revealing information during the book-building process.[55] We do not find any firm evidence that the IPOs with higher institutional participation have a higher chance to be stabilized all other things being equal, as the corresponding regression coefficient is insignificant. On the contrary, the OLS regressions show that issues with higher retail investor participation are stabilized more intensively. The only factor that has a profound effect is the underwriter's reputation, which negatively affects the likelihood of the price support. The more IPOs the bank underwrites, the lower the chances are that the IPO will be stabilized after listing.

The prevailing stock market conditions seem to play an important role in the decision to stabilize the offering. The lower the stock market return is 100 days before the listing date, the higher the chances are that this IPO will be supported by the underwriter. A final offering price below the mid-point of the IPO price range is a significant determinant of an increased probability of stabilization.

To summarize, the bigger issues with more informational asymmetries during the time of falling stock markets, listed by the less reputable underwriters not participating in the share distribution to retail investors are more likely to be price-supported in the

[54] See e.g. Lewellen K., *Risk, Reputation, and IPO Price Support*, in *Journal of Finance*, 2006, vol. 61, pp. 613-653.

[55] See Benveniste L.M.-Busaba W.Y.-Wilhelm JR. W.J., *Price stabilization as a bonding mechanism in new equity issues,* in *Journal of Financial Economics*, 1996, vol. 42, pp. 223-225

aftermarket. We also run the OLS regression on the stabilization intensity, which is measured as the proportion of the total offer bought back by the underwriter during the stabilization period. The stabilizing intensity is positively related to the size of the firm and gross spread, and negatively related to the increased institutional allocation, 1-year long-run adjusted stock returns as well as to market return during the offer date or 100 days before. Our findings indicate that instead of allowing the issue price to go down, since it would be concealed by the overall downward market movement, the underwriter in fact supports the issue more. Moreover, more reputable underwriters seem not to engage intensively in stabilizing activities and to charge lower gross spreads for their IPOs.

E. Stabilization activities in detail

Having analysed the likely determinants of the decisions of the underwriter to stabilize and to what extent, we now turn our attention to the techniques of the stabilization used in practice. The underwriter might choose not to stabilize the issue at all or use pure short covering, pure stabilization bids or a mixture of the first two methods. Table 4 summarizes the most important characteristics for three types of price stabilizing activities we observe in our sample.

[Insert Table 4 about here]

First, we look at the pure short covering transactions. The underwriter overallocates some shares to investors and buys them in the aftermarket instead of exercising the greenshoe option. It is important to note that in such deals some shares are still bought by exercising the greenshoe option (around 3 per cent of the total offer) and around 9 per cent are bought on the aftermarket to cover the resulting short position. The duration of the stabilization activities is 23 days on average, which is one week less than the maximum permitted period of 30 days. The shares are bought from investors with a 3.5 per cent average discount from the offer price, indicating that the underwriter does not really defend the offer price level but allows it to fall slightly. Interestingly, the 3.5 per cent discount equals to the average gross spread charged by the underwriter for pure short covering IPOs, meaning that the gains on buying shares cheaper exactly offset the

foregone commission to be earned by exercising the greenshoe option. The gross spread is lower than for other stabilization techniques, which can be explained by the absence of inventory risks for pure short covering IPOs. Such IPOs are underwritten by more reputable underwriters (the rank is two to four times higher than for other stabilization IPO groups) with a higher proportion of them coming from outside Italy and a higher rate of participation in retail offer subscription and distribution. Moreover, the institutional investors' share and proportion of secondary shares in offer (i.e. coming from selling shareholders) are considerably higher than for other two groups of stabilized IPOs. Such offerings are overpriced by 2 per cent at the listing date and this level of overpricing is maintained throughout the entire stabilization period.

The next group of stabilized IPOs contains the listings where the underwriter has chosen to deliver the overalloted shares exercising the greenshoe option in full. Furthermore, the underwriter in fact bought and sold the shares in the aftermarket, but the purchases were made only with the purpose of supporting the issue, leading to inventory accumulation at the end of the stabilization period (the difference of shares bought and sold is around 1 per cent of the total issue). Such activities seem to be profitable for underwriters, as the average selling price is 2 per cent higher than the purchase price. Moreover, the gross spread charged by underwriters is significantly higher for such IPOs. What is interesting is that the average underwriter rank is lower than for non-stabilized or pure short covering IPOs. Pure stabilizing bids are posted at the offer price (with mean and median being at 100%) and the average underwriter is less likely to participate in the retail offering as well. Such IPOs are less likely to be coordinated by the international investment bank, with fewer shares allocated to the institutional investors and much lower proportion of shares coming from selling shareholders. Surprisingly, during the first day underpricing is quite large (11 per cent on average) and yet underwriters continue to engage in price support for these issues at the later dates when the prices adjust to the offering level. Most but not all shares purchased are resold later, leaving the positive net inventory position of 0.6 per cent. Notwithstanding the positive inventory, the underwriter exercises the greenshoe option (up to 10 per cent of the issue on average) without liquidating his long position in stock.

The last group of the IPOs contains the listings where the underwriter took a short position after share allocation but in addition to covering his short position acquired some additional shares in the aftermarket. As expected, the characteristics of these IPOs lie somewhere between the first two groups.

F. Stabilization effect on prices

As a final set of tests, we try to look at the performance of the stocks immediately after withdrawal of the price support. The question we ask is whether stabilization affects prices only temporarily; in this way we can observe some significant price adjustment later on. Given the noticeable differences, we look at the market-adjusted stock performance for stabilized vs. non-stabilized issues, again splitting the stabilized issues into three groups.

[Insert Table 5 about here]

Table 5 shows the market-adjusted stock return after one, five, ten, and thirty days following the withdrawal of stabilization support. As the regulation allows only thirty calendar days for aftermarket support but many underwriters' communications report the actual date of final stabilizing bid,[56] we estimated the returns taking the stabilization end date as 30 calendar days following the listing day and, alternatively, taking the reported stabilization end date from the stabilization activities press-release.

The table shows that stabilized offerings exhibit mixed performances following the end of stabilization. However, averaging across groups hides some considerable differences. The pure short covering and mixed activity IPOs show significant negative price adjustment with prices falling by two per cent during the first five post-stabilization days. On the contrary, the pure stabilization group have positive although not statistically significant returns.

[56] Indeed, some press-releases reported the stabilization periods as short as 3 days, although the majority of the documents found reported all activity undertaken during the 30 days following the IPO without providing detailed information on a daily basis (i.e. even if the stabilization ended in the first days, the underwriter disclosed the total figures for the whole 30-day interval without explicitly indicating the last date of the share purchases).

The analysis appears only partially to support the hypothesis of the permanent effect of stabilization on share prices. In IPOs where the underwriter purchased the shares to cover his short position resulting from shares overallocation, there is a significant negative price adjustment. For IPOs with pure stabilization bids, we do not observe any fall in prices. However, given the small sample size (only 26 issues with pure stabilization) this result must be treated with caution.[57]

Apart from aftermarket purchases, we also look at the IPOs where the underwriter has decided to exercise the greenshoe option instead. In these IPOs, the market price usually goes well above the offer price and the underwriter opts for covering his short position with shares bought under the greenshoe arrangement. We collected the dates of the press-releases that announced the greenshoe exercise for each IPO and tried to measure the stock returns on that date. In total, we obtained the exact dates for 81 IPOs greenshoe exercise. The average one day return for these stocks is 0.67 per cent significant at 10% level (or 0.58 per cent for market-adjusted returns also significant at 10%) but with insignificant from zero median values. Thus we can say that there is some weak evidence that the market reacts favourably to greenshoe exercise announcements. The most plausible explanation for a positive price effect might be that such an announcement is a signal to the market of the underwriters' beliefs that the stock price will not fall in the near future and that it will not purchase any more shares to stabilize the issue.

5. Conclusion

In this paper we have looked at the activities of underwriters in the aftermarket trading of Italian IPOs. Given the European/national disclosure requirements, we are able to identify precisely the listings that were stabilized and run a series of statistical tests designed to identify the determinants of the underwriter's decision to stabilize the offering price and factors influencing stabilization intensity. Unlike the previous and

[57] If we remove two outliers with an unexplained jump in share prices during the first day after the stabilization period, the price adjustment goes down to zero.

limited number of empirical studies, we observe not only short covering transactions but also direct trading in securities in order to support prices.

Our findings indicate that the issues with more informational asymmetries listed during the times of bear markets by the less reputable underwriters not participating in the share distribution to retail investors are more likely to be price-supported. Moreover, the first opening trade prices of the IPOs are strongly negatively correlated to the probability of stabilization. The total amount of the global offer repurchased by the underwriter, termed as stabilizing intensity, is positively related to the size of the firm, gross spread and negatively to the market return during the offer date and 100 days before. Our findings indicate that instead of allowing the issue price to go down, since it would be concealed by the overall downward market movement, the underwriter supports the issue by trying to keep the price from falling.

We observe considerable differences between IPOs for which the underwriter intervenes to cover his short position after share overallotment and IPOs where the underwriter posts pure stabilization bids. Pure short covering activities of the underwriter last one week less; the defended price level is 3.5 percent lower than the offer price, which coincides with an average 3.5 per cent gross spread charged. Such IPOs are underwritten by more reputable underwriters (the rank is two to four times higher than for other stabilization IPO groups), being mostly the international underwriters participating also in retail offer subscription and distribution. Moreover, the institutional investors' share and proportion of secondary shares on offer are considerably higher than for the other two groups of stabilized IPOs. Pure short covering issues are overpriced by 2 per cent at the listing date and this level of overpricing is maintained throughout the stabilization period.

On the contrary, pure stabilization IPOs are supported at the offering price level, to which the share prices retreat after initial underpricing of 11 per cent. Pure stabilization activity is costly, with an average selling price 7.8 per cent lower than the purchase price. The average underwriter has a lower reputation, participates less in retail offer share distribution, charges a higher spread and is less likely to conduct an offering jointly with an international investment bank. Moreover, fewer shares are allocated to institutional investors and much lower proportion of shares is coming from selling

shareholders. Most but not all shares purchased are resold later leaving the positive net inventory position of 1.4 per cent.

The stabilizing activities have also different effects on post-stabilizing stock returns. The pure stabilization IPOs do not show any price fall following the withdrawal of aftermarket support, whereas pure short covering issues show 2 per cent negative average market-adjusted return during the first 5 days following the end of stabilization.

TABLE 1

Types of Aftermarket Activities in Italian IPOs

The full sample consists of 141 IPOs listed in Italy from 2000 to 2008. Nine IPOs were excluded due to missing or erroneous stabilization records. OA data missing refers to the IPOs that did not report the shares overalloted to the investors in excess of the prospectus amount. Pure short covering refers to the IPOs where underwriters bought the shares only up to the amount of the overallotment option. Pure stabilization refers to the IPOs where underwriters covered the overalloted shares with a greenshoe option but bought the shares in the aftermarket. Combination of both refers to the IPOs where both short covering and pure stabilizing purchases were made.

Year	All IPOs	Stabilized IPOs	OA data missing	Pure short covering	Pure stabilization	Combination of both
2000	40	30	17	-	12	1
2001	17	16	4	1	4	7
2002	6	4	-	1	1	2
2003	4	3	-	-	1	2
2004	7	5	-	-	4	1
2005	15	5	-	4	-	1
2006	20	4	-	3	1	-
2007	27	14	-	7	3	4
2008	5	2	-	2	-	-
Total	141	83	21	18	26	18

TABLE 2

Descriptive Statistics

The full sample consists of 141 IPOs listed in Italy from 2000 to 2008. Underpricing is measured relative to the closing and opening price of the first trading date. Total oversubscription is the ratio of the shares requested over the offered amount. Price update variable measures the relative position of the IPO final price within the price range. Institutional allocation *ex-ante* is the amount of shares reserved for institutional investors in the IPO prospectus. Market return before IPO is measured as the return on the MIB30 index 100 days before listing. Underwriter rank is measured as total proceeds of all IPOs underwritten by the underwriter as a percentage of total proceeds of all IPOs listed in 1999-2008. International global coordinator is a dummy that takes value of 1 if an non-Italian investment bank is a member of an underwriting syndicate and 0 otherwise. Range size is measured in per cent to the lower price range. Secondary shares offered refers to the proportion of global offesr coming for selling shareholders. The differences in means and medians are assessed using the *t-tests* and non-parametric median tests, respectively.

	All Sample (N=141)		Non-stabilized IPOs (N=58)		Stabilized IPOs (N=83)		p-values for difference in	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
First-day underpricing, %	8.2	1.8	16.4	10.5	2.5	-0.3	<0.001	<0.001
Opening price underpricing, %	1.8	2.3	14.0	8.0	-6.7	-0.3	<0.001	<0.001
Total oversubscription, times	5.3	2.7	8.4	5.5	3.2	1.8	<0.001	<0.001
Price update	0.24	0.32	0.52	0.60	0.03	0.01	<0.001	<0.001
Institutional allocation ex ante, %	75.9	75.0	79.2	80.0	73.5	75.0	<0.001	<0.001
Market return, pre-IPO, %	0.0	0.8	3.9	3.0	-2.8	-2.8	<0.001	<0.001
Coordinator manages retail offer	0.81	1.0	0.94	1.00	0.73	1.00	0.00	-
Underwriter gross spread, %	4.0	4.0	3.8	4.0	4.1	4.1	0.03	0.04
Underwriter rank	7.1	6.4	8.2	8.6	6.4	4.6	0.08	0.06
Coordinator is a retail bank	0.32	0.0	0.24	0.0	0.37	0.0	0.09	-
Market return, post-IPO, %	-0.3	-0.6	0.1	1.0	-0.5	-1.1	0.33	0.41
IPO firm age, years	33	20	36	20	30	20	0.34	0.67
Price range size, %	0.35	0.25	0.27	0.25	0.40	0.26	0.24	0.38
Secondary shares offered, %	35.7	22.5	39.3	18.4	33.2	23.1	0.33	0.66
Issue size, €m	168.4	83.3	164.9	96.6	170.9	71.5	0.92	0.51

TABLE 3

Regression of stabilization choice and intensity

The full sample consists of 141 IPOs listed in Italy from 2000 to 2008. Logit regressions use *stabilization dummy* as a dependant variable equal to one if the underwriter purchased any shares to support the price, and zero otherwise. OLS regressions' dependant variable is the *stabilization intensity*, estimated as percentage of shares of the total offer bought back by the underwriter during the stabilization period. *Firm's size* is log offer size for logit regressions and log of total assets for OLS regressions. *Price volatility* is the annualized standard deviation of daily IPO prices over the second month of trading. *Price range size* is measured in per cent to the lower price range. *1-year adjusted return* measures long-run returns on the IPOs one year after the listing adjusted by MIB30 index performance. *International/Retail bank coordinator/Retail offer coordinator* dummies equal to one if the global coordinator is the international investment bank/commercial bank/global coordinator which manages the retail offering itself and does not delegate it to other banks. *Underwriter rank* is measured as a percentage of all IPO proceeds in 1999-2008 underwritten by this bank. *Upward price revision* dummy is one if the offer price is above the mid-point of the offer price range and zero otherwise. Regression coefficients *t-statistics (z-statistics* for logit regressions) are reported in brackets and use White's heteroskedasticity consistent standard errors (White, 1980). *, **, *** denote significance levels, respectively, of 10%, 5%, and 1%.

	LOGIT regression Stabilization dummy			**OLS regression Stabilization intensity**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Firm's size	1.12**	1.16***	0.88**	0.01**	0.01**	0.01**
	(2.16)	(3.88)	(2.52)	(2.31)	(2.27)	(2.38)
Age	-0.34					
	(-1.11)					
Price volatility	0.20		0.74*			
	(0.45)		(1.68)			
Price range size	3.34					
	(1.42)					
1-year adjusted return	-0.64			-0.04**	-0.04***	-0.04**
	(-0.94)			(-2.60)	(-2.96)	(-2.57)
Underwriter gross spread	119.4**	144.2***	137.7***	2.81***	2.90***	3.08***
	(2.25)	(3.80)	(2.92)	(3.87)	(3.74)	(3.71)
International coordinator	-0.37			0.01		
	(-0.45)			(0.55)		
Retail bank coordinator	-0.80			-0.01		
	(-1.22)			(-0.92)		
Retail offer coordinator			-3.29***			-0.01
			(-3.22)			(-0.48)
Underwriter rank	-17.7**	-15.2***	-8.71	-0.12		
	(-2.57)	(-3.15)	(-1.44)	(-1.25)		
Offer oversubscription	-0.11					
	(-0.95)					
Institutional allocation	-2.24			-0.10*	-0.10**	-0.11*
	(-0.72)			(-1.95)	(-2.05)	(-1.65)
Secondary shares offered	0.71			-0.01		
	(0.86)			(-0.55)		
Market return, offer date	-34.9			-0.84*	-0.87*	-0.83*
	(-1.20)			(-1.76)	(-1.92)	(-1.73)
Market return 100 days prior	-11.7***	-5.25**	-9.51***	-0.11	-0.12	
	(-2.74)	(-1.93)	(-3.11)	(-1.34)	(-1.56)	
Opening price underpricing	-5.49***	-5.22***	-7.20***	-0.08**	-0.08**	-0.09***
	(-2.80)	(-3.30)	(-3.72)	(-2.15)	(-2.31)	(-3.31)
Upward price revision	-2.40***	-2.46***	-3.19***	-0.01		
	(-3.01)	(-4.42)	(-4.32)	(-1.21)		
McFadden/Adjusted R^2 (%)	48.1	40.0	49.1	31.3	32.1	29.3
LR stat/F-test *p*-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Number of observations	134	139	129	125	126	117

TABLE 4

Stabilization activities in details

The full sample consists of 141 IPOs listed in Italy from 2000 to 2008. Five IPOs were excluded due to missing stabilization records. 21 IPOs had no data on total overallotment and were excluded. Non-stabilized IPOs are the listings for which there was no aftermarket activity by the underwriters. Pure short covering refers to the IPOs where underwriters bought the shares only up to the amount of the overallotment option. Pure stabilization refers to the IPOs where underwriters covered the overalloted shares with a greenshoe option but bought the shares in the aftermarket. Combination of both refers to the IPOs where both short covering and pure stabilizing purchases were made. The underpricing levels are market-adjusted using corresponding return on the MIB30 index. Stabilization duration refers to the actual period as reported in the press-releases. Total shares purchased/sold are a percentage of the global offer. Underwriter rank is measured as total proceeds of all IPOs underwritten by the underwriter in per cent of total proceeds of all IPOs listed in 1999-2008. International global coordinator is a dummy that takes value of 1 if an non-Italian investment bank is a member of an underwriting syndicate and 0 otherwise. Retail bank is a dummy that takes value of 1 if the underwriter acts as a member of a retail offer syndicate. The differences in means and medians are for pure short covering and stabilization groups only and are assessed using the *t-tests* and non-parametric median tests respectively. *, **, *** denote significance level, respectively, of 10%, 5%, and 1%.

	Mixed activity (N=18)		Pure short covering (N=18)		Pure stabilization (N=26)		Difference in means/medians	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
First-day market-adjusted underpricing, %	0.7	-1.3	-2.0	-2.1	10.7	2.0	*	**
20-days market-adjusted underpricing, %	-2.6	-1.6	-1.6	-1.1	8.5	5.7	**	**
Stabilization duration, days	29	30	23	30	27	28	*	-
Total shares purchased, %	9.3	8.5	6.7	7.5	4.6	2.4	-	**
Total shares sold, %	3.1	1.0	-	-	3.2	1.5	-	-
Purchase price to offer price, %	96.9	97.2	96.5	97.5	100.0	99.9	*	**
Selling price to offer price, %	97.9	97.8	-	-	102.7	102.0	-	-
Underwriter gross spread, %	4.0	4.1	3.6	3.5	4.2	4.1	**	***
Underwriter rank, %	5.3	1.2	9.0	11.8	5.6	3.2	*	*
International global coordinator, %	44.0	0.0	55.6	100.0	34.6	0.0	-	-
Coordinator manages retail offer, %	88.2	100.0	88.2	100.0	61.5	100.0	*	-
Coordinator is retail bank, %	61.1	100.0	27.8	0.0	30.8	0.0	-	-
Institutional share, %	75.1	75.0	80.1	80.0	72.4	70.4	***	***
Secondary shares offered, %	33.3	24.7	51.0	51.1	33.4	17.1	*	**

TABLE 5

Price adjustment following the end of stabilization period

The table show the market adjusted stock returns following the end of the stabilization period for the 141 IPOs listed in Italy from 2000 to 2008. Non-stabilized / stabilized IPOs are the listings for which there was no aftermarket activity by the underwriters / underwriters reports indicate some share purchases in the aftermarket. Pure short covering refers to the IPOs where underwriters bought the shares only up to the amount of the overallotment option. Pure stabilization refers to the IPOs where underwriters covered the overalloted shares with a green shoe option but did bought the shares in the aftermarket. Combination of both refers to the IPOs where both short covering and pure stabilizing purchases were made. Panel A reports the market-adjusted stock returns assuming stabilization ends 30 calendar days after listing. Panel B shows the returns assuming the stabilizing activities terminated at the date reported in underwriters' press-releases. The difference of means / medians from zero is tested using t-test / Wilcoxon signed rank test respectively. *, **, *** denote significance levels of 10%, 5%, and 1%.

	Non-stabilized IPOs (N=58)		Stabilized IPOs (N=83)		Pure short covering (N=18)		Pure stabilization (N=26)		Mixed activity (N=18)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel A. Stabilization ends 30 days after listing										
Stock return after 1 day, %	-0.1	-0.3	0.4	0.0	0.1	0.0	1.5*	0.1	-0.7	-0.7
Stock return after 5 days, %	-0.4	-0.8	-1.2*	-1.6***	-2.6***	-2.4**	1.7	-0.2	-3.9***	-2.7***
Stock return after 10 days, %	1.2	0.7	-1.0	-1.5*	-2.0*	-2.2*	1.9	1.2	-3.3*	-4.6*
Stock return after 1 month, %	1.7	1.2	0.1	-1.3	-1.5	-1.8	3.1	3.9	-3.6*	-4.2*
Panel B. Stabilization period ends as reported										
Stock return after 1 day, %	-0.1	-0.3	-0.1	0.0	0.0	0.0	0.0	0.1	-0.1	-0.1
Stock return after 5 days, %	-0.1	-0.4	-0.1	-0.4	-1.6	-1.4	2.3	0.7	-3.6**	-1.9**
Stock return after 10 days, %	1.2	1.3	0.0	-0.5	-1.2	-0.8	3.0	1.0	-3.1*	-3.8*
Stock return after 1 month, %	2.0	2.1	0.4	0.0	-2.4*	-2.2	4.4	4.6	-3.4*	-4.0*

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