

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM S-8

REGISTRATION STATEMENT UNDER
THE SECURITIES ACT OF 1933

MRI Interventions, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation or organization)

58-2394628

(I.R.S. Employer Identification No.)

**One Commerce Square, Suite 2550
Memphis, Tennessee 38103**
(Address of Principal Executive Offices)

**1998 Stock Option Plan
2007 Stock Incentive Plan
2010 Incentive Compensation Plan
2010 Non-Qualified Stock Option Plan
2012 Incentive Compensation Plan**
(Full title of the plans)

**Kimble L. Jenkins
Chief Executive Officer
MRI Interventions, Inc.
One Commerce Square, Suite 2550
Memphis, TN 38103
(901) 522-9300**
(Name and address of agent for service)

Copies to:

Robert J. DelPriore, Esq.
Baker, Donelson, Bearman, Caldwell & Berkowitz, PC
165 Madison Avenue, Suite 2000
Memphis, TN 38103
(901) 577-8228

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer
 Non-accelerated filer Smaller reporting company
 (Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
Common Stock, \$0.01 par value per share	287,500 Shares (2)	\$0.89(7)	\$255,875	\$29.32
Common Stock, \$0.01 par value per share	114,875 Shares (3)	\$6.43(8)	\$738,646	\$84.65
Common Stock, \$0.01 par value per share	524,700 Shares (4)	\$1.80(9)	\$944,460	\$108.24
Common Stock, \$0.01 par value per share	2,371,000 Shares (5)	\$1.80(10)	\$4,267,800	\$489.09
Common Stock, \$0.01 par value per share	3,000,000 Shares (6)	\$1.11(11)	\$3,330,000	\$381.62
Total	6,298,075 Shares		\$9,536,781	\$1,092.92

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), this registration statement shall also cover any additional shares of common stock which become issuable under the above-named plans by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without receipt of consideration which results in an increase in the number of our outstanding shares of common stock.
- (2) Represents 287,500 shares of common stock subject to outstanding awards under the SurgiVision, Inc. 1998 Stock Option Plan (the “1998 Stock Option Plan”).
- (3) Represents 114,875 shares of common stock issuable under the SurgiVision, Inc. 2007 Stock Incentive Plan (the “2007 Stock Incentive Plan”).
- (4) Represents 524,700 shares of common stock issuable under the SurgiVision, Inc. 2010 Incentive Compensation Plan (the “2010 Plan”).
- (5) Represents 2,371,000 shares of common stock issuable under the SurgiVision, Inc. 2010 Non-Qualified Stock Option Plan (the “2010 Non-Qualified Stock Option Plan”).
- (6) Represents 3,000,000 shares of common stock issuable under the MRI Interventions, Inc. 2012 Incentive Compensation Plan (the “2012 Plan”).
- (7) Pursuant to Rule 457(h), for the 287,500 shares of common stock issuable upon the exercise of outstanding awards granted under the 1998 Stock Option Plan, the Proposed Maximum Offering Price Per Share is \$0.89 per share, which is the weighted average exercise price of the awards granted under the 1998 Stock Option Plan.
- (8) Pursuant to Rule 457(h), for the 114,875 shares of common stock issuable upon the exercise of outstanding awards granted under the 2007 Stock Incentive Plan, the Proposed Maximum Offering Price Per Share is \$6.43 per share, which is the weighted average exercise price of the awards granted under the 2007 Stock Incentive Plan.
- (9) Pursuant to Rule 457(h), for the 524,700 shares of common stock issuable upon the exercise of outstanding awards granted under the 2010 Plan, the Proposed Maximum Offering Price Per Share is \$1.80 per share, which is the weighted average exercise price of the awards granted under the 2010 Plan.
- (10) Pursuant to Rule 457(h), for the 2,371,000 shares of common stock issuable upon the exercise of outstanding awards granted under the 2010 Non-Qualified Stock Option Plan, the Proposed Maximum Offering Price Per Share is \$1.80 per share, which is the weighted average exercise price of the awards granted under the 2010 Non-Qualified Stock Option Plan.
- (11) Pursuant to Rule 457(h), the Proposed Maximum Offering Price Per Share is based upon (i) the weighted average exercise price of \$1.00 per share for the 2,746,400 shares of common stock issuable upon exercise of outstanding awards granted under the 2012 Plan and (ii) the average high and low sales prices of our common stock of \$2.25 per share, as reported on the OTC Bulletin Board on August 13, 2012, with respect to the balance of 253,600 shares that have been reserved for issuance pursuant to awards that may be granted under the 2012 Plan.

Part I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The information called for in Part I of Form S-8 is not being filed with or included in this Form S-8 (by incorporation by reference or otherwise) in accordance with the rules and regulations of the Securities and Exchange Commission (the "SEC").

Part II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this registration statement, and later information filed with the SEC will update and supersede this information. We hereby incorporate by reference into this registration statement the following documents we previously filed with the SEC:

- Our Registration Statement on Form 10 (File No. 000-54575) filed on December 28, 2011, as amended on February 9, 2012, February 28, 2012, March 15, 2012 and April 20, 2012 (as so amended, the "Form 10"), which contains our audited financial statements for the latest fiscal year for which such statements have been filed;
- Our Current Report on Form 8-K filed on April 19, 2012;
- Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 and filed on May 11, 2012, as amended on June 7, 2012;
- Our Current Report on Form 8-K filed on May 14, 2012;
- Our Current Report on Form 8-K filed on May 18, 2012, except as to the portion thereof furnished under current item 7.01 of Form 8-K that is not deemed filed under such provision;
- Our Current Report on Form 8-K filed on June 14, 2012;
- Our Current Report on Form 8-K filed on June 21, 2012;
- Our Current Report on Form 8-K filed on June 26, 2012;
- Our Current Report on Form 8-K filed on July 5, 2012;
- Our Current Report on Form 8-K filed on July 6, 2012;
- Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2012 and filed on August 14, 2012; and
- The description of our common stock contained in the Form 10.

All documents that we subsequently file pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act prior to the filing of a post-effective amendment to this registration statement which indicates that all of the shares of common stock offered have been sold or which deregisters all of such shares then remaining unsold, shall be deemed to be incorporated by reference in this registration statement and to be part hereof from the date of the filing of such documents; except as to any portion of any future annual or quarterly report to stockholders or document or current report furnished under current items 2.02 or 7.01 of Form 8-K that is not deemed filed under such provisions. For the purposes of this registration statement, any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this registration statement.

Under no circumstances will any information filed under current items 2.02 or 7.01 of Form 8-K be deemed incorporated herein by reference unless such Form 8-K expressly provides to the contrary.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

None.

Item 6. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law (the “DGCL”) authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys’ fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

As permitted by Delaware law, as it now exists or may in the future be amended, we have adopted provisions in our certificate of incorporation and bylaws that limit or eliminate the personal liability of directors for a breach of their fiduciary duty of care as a director to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director’s duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not limit or eliminate our rights or any stockholder’s rights to seek non-monetary relief, such as injunctive relief or rescission. These provisions will not alter a director’s liability under federal securities laws.

As permitted by Delaware law, our bylaws also provide that:

- we will indemnify our directors and officers to the fullest extent permitted by law; and
- we will advance expenses to our directors and officers in connection with a legal proceeding to the fullest extent permitted by law.

Our bylaws also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our bylaws permit such indemnification. We have obtained such insurance.

In addition to the indemnification provided for in our certificate of incorporation and bylaws, we have entered into separate indemnification agreements with each of our directors and officers. These indemnification agreements require us, among other things, to indemnify our directors and officers for expenses (including attorneys’ fees), judgments, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of his or her service as one of our directors or officers, or his or her service on behalf of any of our subsidiaries or any other company or enterprise to which the person provides services at our request.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits.

Exhibit No.	Description
4.2	Specimen of Common Stock Certificate (1)
5.1	Opinion of Baker, Donelson, Bearman, Caldwell & Berkowitz, PC
23.1	Consent of Cherry, Bekaert & Holland, L.L.P.
23.2	Consent of Baker, Donelson, Bearman, Caldwell & Berkowitz, PC (included in Exhibit 5.1)
24.1	Power of attorney (included on signature page)
99.1	1998 Stock Option Plan (2)
99.2	2007 Stock Incentive Plan (3)
99.3	2010 Incentive Compensation Plan (4)
99.4	2010 Non-Qualified Stock Option Plan (5)
99.5	2012 Incentive Compensation Plan (6)

- (1) Filed as Exhibit 4.2 to the registrant's Amendment No. 1 to General Form of Registration of Securities on Form 10, filed February 9, 2012 and incorporated herein by reference.
- (2) Filed as Exhibit 10.1 to the registrant's General Form of Registration of Securities on Form 10, filed December 28, 2011 and incorporated herein by reference.
- (3) Filed as Exhibit 10.2 to the registrant's General Form of Registration of Securities on Form 10, filed December 28, 2011 and incorporated herein by reference.
- (4) Filed as Exhibit 10.4 to the registrant's General Form of Registration of Securities on Form 10, filed December 28, 2011 and incorporated herein by reference.
- (5) Filed as Exhibit 10.5 to the registrant's General Form of Registration of Securities on Form 10, filed December 28, 2011 and incorporated herein by reference.
- (6) Filed as Exhibit 10.34 to the registrant's Amendment No. 1 to General Form of Registration of Securities on Form 10, filed February 9, 2012 and incorporated herein by reference.

Item 9. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) that are incorporated by reference in the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Memphis, Tennessee, on this 17th day of August, 2012.

MRI INTERVENTIONS, INC.

By: /s/ Kimble L. Jenkins

Kimble L. Jenkins

President and Chief Executive Officer

POWER OF ATTORNEY

We, the undersigned officers and directors of MRI Interventions, Inc., hereby severally constitute and appoint Kimble L. Jenkins and David W. Carlson and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for him and in his name, place and stead, and in any and all capacities, to sign for us and in our names in the capacities indicated below any and all amendments (including post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the date indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Kimble L. Jenkins</u> Kimble L. Jenkins	President, Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	August 17, 2012
<u>/s/ David W. Carlson</u> David W. Carlson	Chief Financial Officer (Principal Financial and Accounting Officer)	August 17, 2012
<u>/s/ Paul A. Bottomley</u> Paul A. Bottomley	Director	August 17, 2012
<u>/s/ Bruce C. Conway</u> Bruce C. Conway	Director	August 17, 2012
<u>/s/ Charles E. Koob</u> Charles E. Koob	Director	August 17, 2012
<u>/s/ James K. Malernee, Jr.</u> James K. Malernee, Jr.	Director	August 17, 2012
<u>/s/ Michael A. Pietrangelo</u> Michael A. Pietrangelo	Director	August 17, 2012
<u>/s/ Andrew K. Rooke</u> Andrew K. Rooke	Director	August 17, 2012
<u>/s/ Michael J. Ryan</u> Michael J. Ryan	Director	August 17, 2012
<u>/s/ John N. Spencer, Jr.</u> John N. Spencer, Jr.	Director	August 17, 2012

[LETTERHEAD OF BAKER, DONELSON, BEARMAN, CALDWELL & BERKOWITZ, PC]

August 17, 2012

MRI Interventions, Inc.
One Commerce Square, Suite 2550
Memphis, TN 38103

Re: **Securities Being Registered under Registration Statement on Form S-8**

Ladies and Gentlemen:

This opinion letter is furnished to you in connection with your filing of a Registration Statement on Form S-8 (the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), on or about the date hereof relating to an aggregate of up to 6,298,075 shares (the "Shares") of Common Stock, par value \$0.01 per share, of MRI Interventions, Inc., a Delaware corporation (the "Company"), that may be issued pursuant to the Company's 1998 Stock Option Plan, 2007 Stock Incentive Plan, 2010 Incentive Compensation Plan, 2010 Non-Qualified Stock Option Plan and 2012 Incentive Compensation Plan (together, the "Plans").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions expressed below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

For purposes of the opinion expressed below, we have assumed that a sufficient number of authorized but unissued shares of the Company's Common Stock will be available for issuance when the Shares are issued.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Plans, will be validly issued, fully paid and non-assessable.

Our opinions expressed above are limited to the Delaware General Corporation Law, and we express no opinion with respect to the applicability of any other laws. As used herein, the term "Delaware General Corporation Law" includes the statutory provisions contained therein, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting these laws.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,
BAKER, DONELSON, BEARMAN,
CALDWELL
& BERKOWITZ, PC

/s/ Robert J. DelPriore

Robert J. DelPriore, Authorized Representative

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the reference of our firm under the caption "Experts" in the Registration Statement (Form S-8) and related prospectus of MRI Interventions, Inc., dated August 17, 2012, for the registration of 6,298,075 shares of its common stock, and to the incorporation by reference therein of our report, dated February 27, 2012, with respect to the financial statements of MRI Interventions, Inc. included in its Form10 filed February 28, 2012 with the Securities and Exchange Commission.

/s/ CHERRY, BEKAERT & HOLLAND, L.L.P.

Tampa, Florida
August 17, 2012

